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Electrical Contracting

With Which Is Incorporated

The Electragist

February
1929

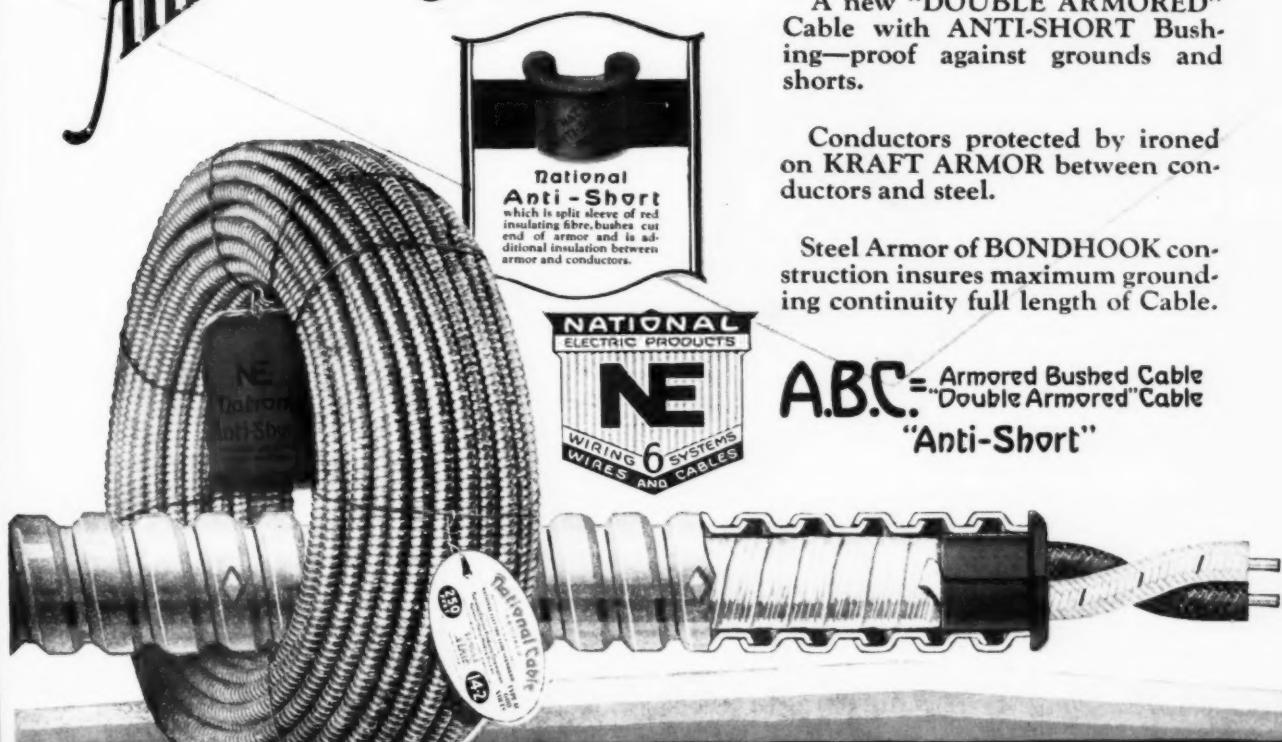
Announcing The New **National**
Cable
-DOUBLE ARMORED-

A new "DOUBLE ARMORED" Cable with ANTI-SHORT Bushing—proof against grounds and shorts.

Conductors protected by ironed on KRAFT ARMOR between conductors and steel.

Steel Armor of BONDHOOK construction insures maximum grounding continuity full length of Cable.

A.B.C. = Armored Bushed Cable
"Double Armored" Cable
"Anti-Short"



National Electric Products Corporation
National Metal Molding Division
Pittsburgh, Pa.

Circulation this issue 15,000 copies, in Contracting field

Here is the
New
Hubbell Candle Socket
APPROVED

*a radical departure
from past design
and construction*

A FEW weeks ago the new Hubbell Pull Socket was presented and accepted enthusiastically by the fixture industry as the greatest improvement in 15 years.

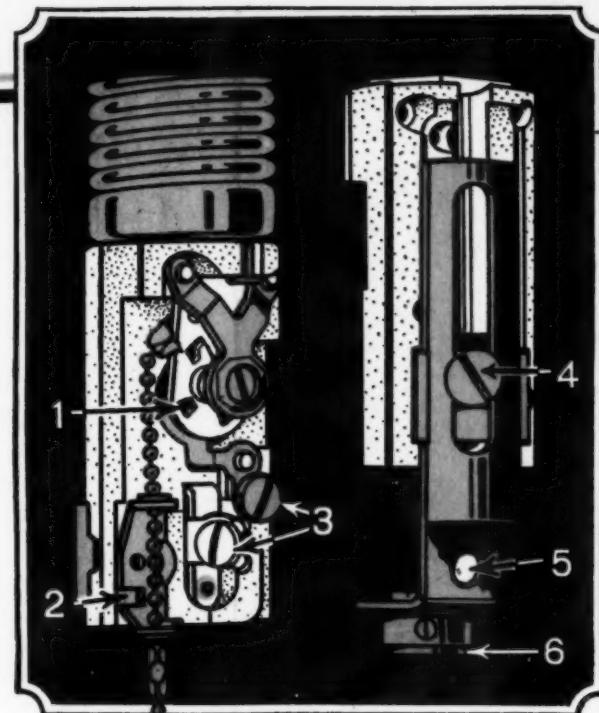
Here is the new Hubbell Candle Socket ... as radically different ... as greatly improved as the new Hubbell Pull Socket.

The simple design and construction of the mechanism which will lengthen the socket life and eliminate trouble ... the smoother action ... the greater wiring ease ... the installation convenience provided by the new design of the Hickey ... every feature of this new Hubbell Candle Socket is sure to win instant approval.

A few of the details are given here—go over them. Then get in touch with the nearest Hubbell office for complete information and samples.

HARVEY HUBBELL, Incorporated
BRIDGEPORT, CONNECTICUT, U. S. A.

 **HUBBELL**
Candle Sockets



*An improved Hickey...
easy to detach and adjust.*

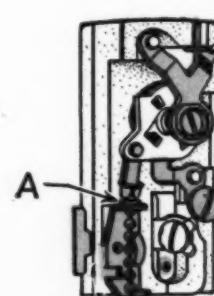
Hickey has been redesigned for greater wiring ease and installation convenience. Note these features:

Easily detached from socket or adjusted by loosening one screw instead of the usual two. (See arrow No. 4).

Hole provided for inserting screw driver to tighten on fixture. (See arrow No. 5).

Bushing for attaching to fixture has five full threads and set screw. (See arrow No. 6).

*New simplified mechanism
smoother action—trouble-free*



Note greatly simplified mechanism. Only a few parts, simple but sturdy in construction for longer, trouble-free socket life.

New tripping mechanism is smooth and positive in action—fibre segment engages commutator directly—(see arrow No. 1).

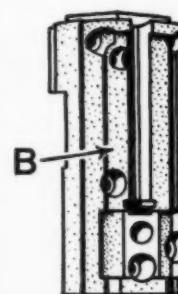
Stop for paper shell which can be depressed to take glass or fibre candle—(see arrow No. 2). Wiring terminals on one side for convenience—no need to

move socket around to wire—(see arrow No. 3).

Ratchet and chain brought to complete stop when clasp reaches stop—no strain on fibre segment—cannot pull out—(arrow A).

A one-piece porcelain body for strength and proper alignment—(see arrow B).

Parts are riveted to porcelain wherever possible—fewer screws to loosen under vibration and continuous service.



Electrical Contracting

With Which Is Incorporated The Electragist

S. B. WILLIAMS
Editor

Vol. 28

FEBRUARY, 1929

No. 4

Table of Contents:

	Page
John Wise on the Jobber	5
The Franklin Specification for Good Lighting	6
Estimate of a Twenty-Two Circuit Wiring Job.....	..... <i>By A. L. Abbott</i>
How to Install Expansion Joints	10
Rule of Thumb Method for Estimating Floodlighting..	11
One House with 251 Outlets	13
New Electragists' Headquarters	14
Taking the Slack Out of the Work Sheet <i>By C. C. Childers</i>	16
Save Time and Energy Bending Pipe in a Vise	18
Editorials	20
Code Chats	22
A.E.I. Activities	26
In the Editor's Mail	28
Contracting News	30
Manufacturer's News	60
Suggested Resale Prices	67

Index to Advertisers on Page 122

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Also publishers of *The Jobber's Salesman and Industrial Distributor and Salesman*.

7 reasons why you should use Romex



- 1 Romex requires fewer fittings
- 2 Romex is lighter and easier to get to the job
- 3 Romex is easier to fish through old walls
- 4 Romex reduces labor costs on new work
- 5 Romex gives a safer job
- 6 Romex can never rust—it will last as long as the house it is in
- 7 Romex shows a larger profit per job

If you would like more information about Romex, write for the latest Romex booklet.

ROME WIRE COMPANY
DIVISION of GENERAL CABLE CORPORATION
Rome, New York

ROME WIRE

2807R

FROM WIRE BAR TO FINISHED COPPER WIRE

Amazing Response to Price Service

IT is especially gratifying to a publisher to learn from his subscribers that they do appreciate the value of a service being performed for them.

So it is with pardonable pride that we refer to the amazing response that we have already received from contractors regarding the "Suggested Resale Price Service," which was inaugurated in the January issue of ELECTRICAL CONTRACTING.

Knowing the great need which has existed in the field for a comprehensive tabulation of suggested resale prices on the commonly used electrical construction materials, it was, perhaps, not strange that our service would be instantly accepted and put to immediate use. But that so many contractors would actually take the time to express their appreciation in letters to us, many of them citing specific instances in which the prices were used to advantage, is the most gratifying phase of the response.

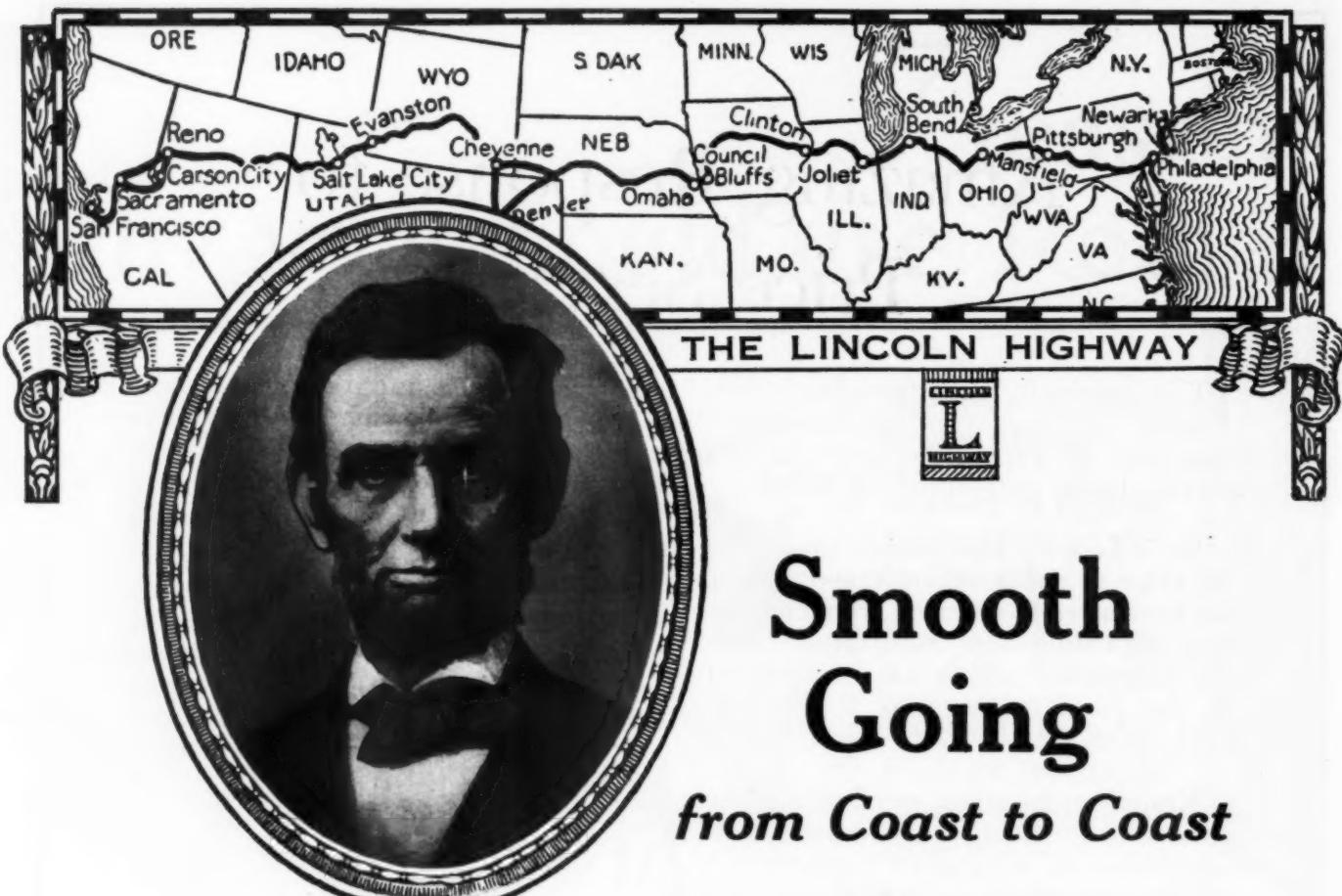
LET'S take a "close-up" of just one of the letters received. It is from a contractor in New York City. He explained that he was preparing a bid on a house-wiring job when ELECTRICAL CONTRACTING reached his desk and he found immediate use for the Price Section. When a conference was called with the owner and his architect, the contractor *took a copy of ELECTRICAL CONTRACTING with him* to the meeting. Before the bid was accepted the owner asked to know the cost of an intercommunicat-

ing telephone installation which was not originally specified. Within five minutes the contractor had computed the additional cost, based on prices found in the Resale Price Section, and closed the deal.

"I am convinced," says the contractor, "that your Price Service made it possible for me to secure the job because I could quote the owner a price before he could change his mind. And best of all, I know that I will make a fair profit!"

MAKING a "fair profit," or any profit, has been the contractor's biggest problem and now it seems we are in a fair way to solve that problem. ELECTRICAL CONTRACTING'S Resale Price Service will save many contractors hours of valuable time and often be a factor in securing a job; but its one outstanding value is that these prices will insure the contractor a profit.

Last month we said that the inauguration of this Resale Price Service was the outstanding achievement in ELECTRICAL CONTRACTING'S 27 years of service to electrical contractors. Today, after less than a month's use of this service by 15,000 contractors, we make the prediction that the time will come when the contractor will advertise the fact that he uses this Resale Price Service in order to identify himself as one who is doing a profitable business on a business-like basis and that jobbers will hesitate to extend credit, especially to the smaller contractor who is not using a Resale Price Service.



Smooth Going from Coast to Coast

A. Lincoln



Speeding over the Lincoln Highway reminds us of the profitable speed being made on wiring jobs, from coast to coast, with these quality wiring materials. - - - - And why not! Durabilt Products are built to help the Electrical Contractor do the best possible job with the greatest saving of time.

DURABILT REG. U. S. PAT. OFF.
PRODUCTS *Speed up
wiring
jobs*

TUBULAR WOVEN FABRIC COMPANY • PAWTUCKET, R. I.

John Wise On The Jobber

SOME times when I think about some things some of our jobber friends do I get hot under the collar. I don't have to tell you, you know. But there are other times when I get in a jam and I think what a H--l of a fix I'd be in if it wasn't for the jobber, and so I believe it won't do us a bit of harm, as contractors, to run over in our minds occasionally some of the advantages that come our way from the jobber.

I don't mean the free meals we hook the salesmen for out at meetings and conventions but the real honest-to-himmel help that we are so accustomed to get from the jobber that we just don't think about it.

F'r instance:

The jobber is our purchasing agent, saving us innumerable interviews with manufacturers' salesmen; endless and costly correspondence and clerical work. Oh boy! Imagine seeing a thousand manufacturers' salesmen. These birds from the jobbing houses are bad enough.

The jobber collects the electrical products of the whole country and puts them in stock in a warehouse a few miles from our shops.

From this stock he doles out to us the things we want when we want them. Sometimes we want but a single 50 cent do-hickey. He may growl, but we get it (and generally at the package price. Don't forget that).

On these materials and devices he gives us for the most part 24-hour delivery and pinches almost hourly delivery. In many cases, through his salesmen and his close contact with us from his office, he almost anticipates our needs, and helps us to keep our jobs going smoothly.

In the same manner that he represents one source of supply he represents one source of

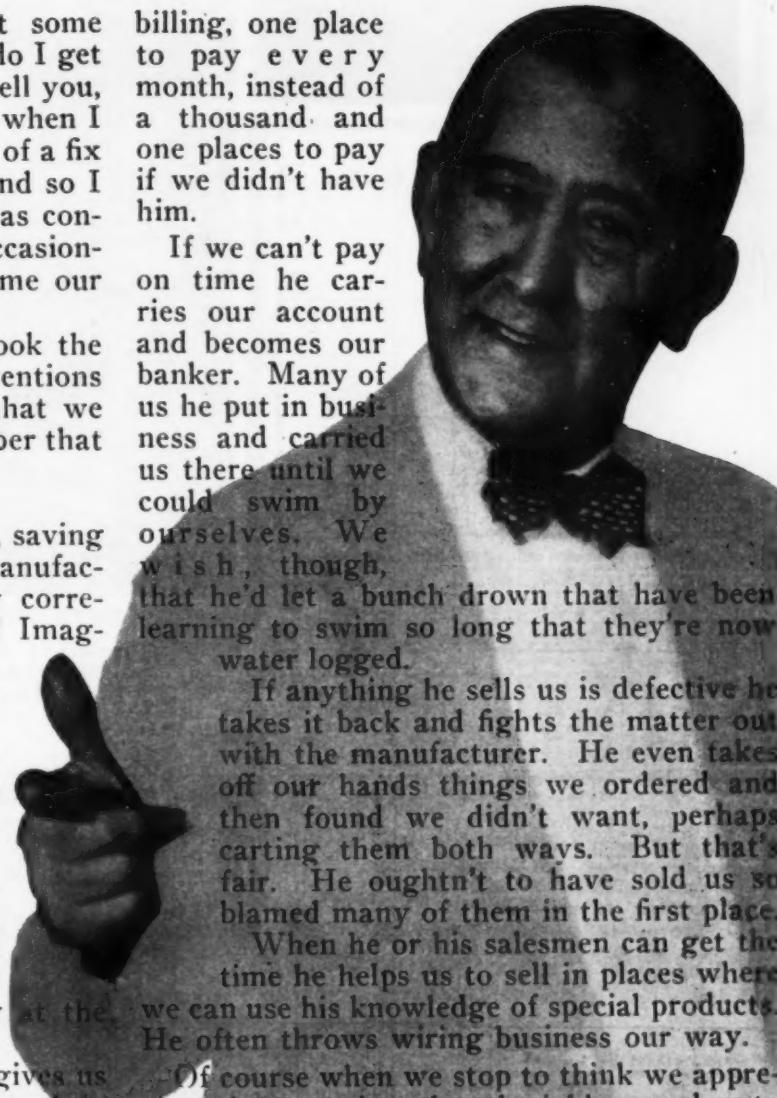
billing, one place to pay every month, instead of a thousand and one places to pay if we didn't have him.

If we can't pay on time he carries our account and becomes our banker. Many of us he put in business and carried us there until we could swim by ourselves. We wish, though, that he'd let a bunch drown that have been learning to swim so long that they're now water logged.

If anything he sells us is defective he takes it back and fights the matter out with the manufacturer. He even takes off our hands things we ordered and then found we didn't want, perhaps carting them both ways. But that's fair. He oughtn't to have sold us so blamed many of them in the first place.

When he or his salesmen can get the time he helps us to sell in places where we can use his knowledge of special products. He often throws wiring business our way.

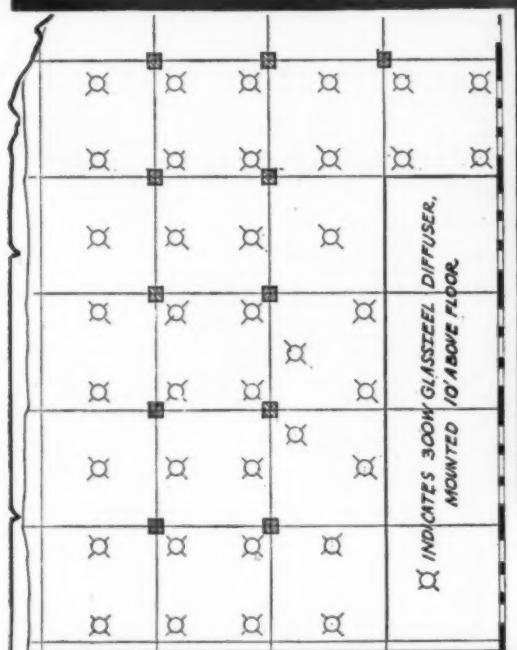
Of course when we stop to think we appreciate these services that the jobber renders to us, just as we appreciate that in consideration of these services we have been and are giving him the business that is the bread and butter of his existence. Heaven help us if anything should happen to this bond of mutual interest and interdependence. Let it be strengthened rather than weakened, as time goes on.





The FRANKLIN

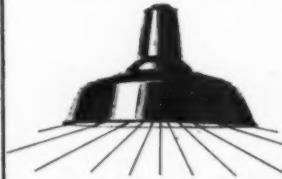
A Simple, Practical, Accurate Method for Layout of the Lighting of Commercial, Industrial and Public Building Interiors.



Typesetting plant relighted to Franklin Standards. Upper left shows before and below it the effect after using 300-watt glassteel diffusers according to layout at left. Below is the way this is worked out from Franklin Specifications—follow the arrow.

Area Per Outlet Adequately Lighted or *Approximate Spacing	Distance from Underside of Reflector to Floor not to be less than	Conditions	Average Foot-Candles					Average Foot-Candles					Average Foot-Candles				
			100 Watt	150 Watt	200 Watt	300 Watt	500 Watt	100 Watt	150 Watt	200 Watt	300 Watt	500 Watt	100 Watt	150 Watt	200 Watt	300 Watt	500 Watt
55-65 Sq. Ft. or 7 1/4" x 7 1/4" Spacing	7' 6"	Favorable Average Unfavorable	8-10 6-8 5.5-6.5	15-18 11-15 9-11	21-26 16-21 13-16	.....	.....	7-9 5-7 4.5-5.5	13-16 10-13 8-10	18-23 14-18 11-14	.....	.....	7-9 5-6 3-4	10-14 7-10 4-6	15-22 11-15 7-9	.....	.....
65-75 Sq. Ft. or 8 1/4" x 8 1/4" Spacing	8' 6"	Favorable Average Unfavorable	7-9 6-7 5-6	13-16 10-13 8-10	18-22 13-18 11-13	.....	.....	6-8 5-6 4-5	11-14 8-11 7-8	15-19 11-15 9-11	.....	.....	6-7 4.5-5.0 2.5-3.0	9-13 6-9 4-6	18-19 9-13 6.5-8.0	.....	.....
75-85 Sq. Ft. or 9 1/2" x 9" Spacing	8' 6"	Favorable Average Unfavorable	6-8 5-6 4-5	11-14 8-11 7-8	15-19 12-15 10-12	.....	.....	5-7 4-5 3.5-4.0	10-12 8-10 6-8	13-17 10-13 8-10	.....	.....	5-6 4.0-4.5 2.5-3.0	8-11 8-11 6-7	11-17 8-11 6-7	.....	.....
85-95 Sq. Ft. or 9 1/2" x 9 1/2" Spacing	9' 0"	Favorable Average Unfavorable	5-7 4-5 3.5-4.0	10-12 8-10 6-8	14-17 11-14 9-11	.....	.....	5-6 3.5-4.5 3.0-3.5	8-10 6-8 5-6	12-15 9-12 7-9	.....	.....	6-0-5.5 3.5-4.0 2.0-2.5	7-10 5-7 3-4	10-14 7-9 5-6	17-24 11-17 7-11	.....
95-110 Sq. Ft. or 10' x 10' Spacing	9' 6"	Favorable Average Unfavorable	4-6 3.5-4.0 3.0-3.5	8-10 6-8 5-6	12-15 10-12 8-10	21-26 16-21 13-16	.....	4-5 3.4 2.5-3.5	7-9 5-7 4-5	11-13 8-11 6-8	18-23 13-18 11-13	.....	3.5-5.0 3.0-3.5 1.5-2.0	6-9 4-6 2.5-4.0	9-12 6-8 4.5-5.0	15-21 9-15 6-9	.....
110-125 Sq. Ft.	9' 6"	Favorable Average Unfavorable	4-5	7-9	10-12	16-21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

SECTION 1



SECTION 2



SECTION 3†



SPECIFICATIONS for GOOD *Lighting*

TO use Franklin Specifications take Table 3 for determining lamp size and outlet spacing for various types of equipment. The particular job below was calculated by tracing the line at right. First, get ceiling height. Table shows that underside of this type of reflector must not be less than so many inches from ceiling. This determines mounting height. Find this figure in second column. Left hand column then gives spacing. If conditions are favorable, average, or unfavorable, which is determined from Table 2 of specification, follow

that line to the desired number of foot-candles under the type of unit selected. At the top of column will be found the size of lamps required. The desired number of foot-candles is found in Table I for every class of industry.

Giving:

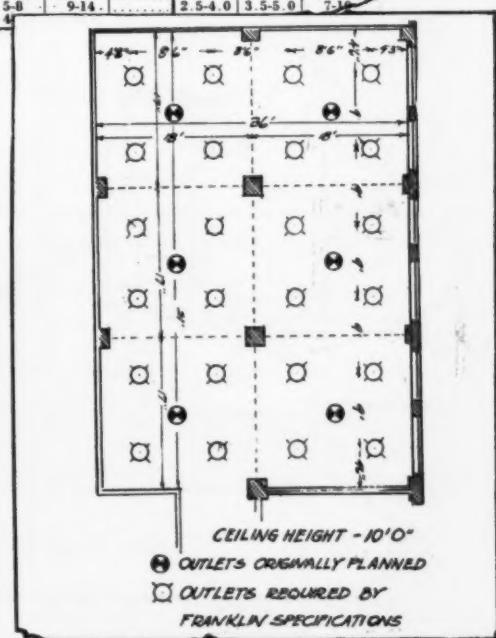
- 1—Recommended foot-candles for every kind of building and manufacturing process.
- 2—Table of room and maintenance conditions for quickly determining whether conditions are favorable, medium, or unfavorable.
- 3—A table for determining lamp size and outlet spacing for various types of equipment.

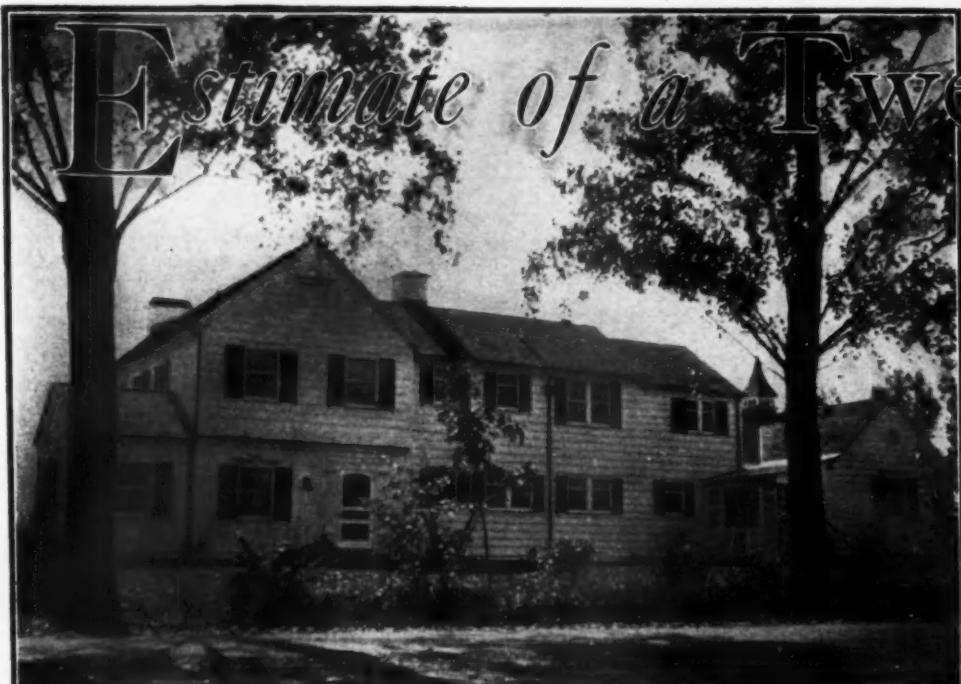
These specifications are not intended to cover the unusual condition. Such cases should be referred to a consulting engineer.

The Franklin Specifications were first developed by The Electric Association of Chicago under the direction of Ralph Raymond, illuminating engineer. After two years of operation in which the specifications have demonstrated their practicability and help in raising the standards of lighting, the Franklin Specifications have been sponsored by the Society for Electrical Development, 420 Lexington Avenue, New York City, and are now made available for national use. Printed copies of the specifications may be obtained from the Society.

Area Per Outlet Adequately Lighted or *Approximate Spacing	Distance from Underside of Reflector to Floor, not to be less than	Conditions	Average Foot-Candles				Average Foot-Candles			
			100 Watt	150 Watt	200 Watt	300 Watt	150 Watt	200 Watt	300 Watt	500 Watt
55-65 Sq. Ft. or 7 1/4' x 7 1/4' Spacing	7' 0"	Favorable	5-7	9-12	13-18	22-30	6-10	9-14	15-24	...
		Average	3-5	6-9	9-13	14-22	4-6	5-9	9-15	...
		Unfavorable	2-5-3-0	4-6	9-18	10-14	3-4	4-5	7-9	...
65-75 Sq. Ft. or 8 1/4' x 8 1/4' Spacing	7' 0"	Favorable	4-6	8-11	11-15	19-25	5-8	7-12	13-20	...
		Average	3-4	5-8	7-11	12-19	3-5	5-7	8-13	...
		Unfavorable	2-3	3-5-5-0	5-7	8-12	2-5-3-0	3-5	6-8	...
75-85 Sq. Ft. or 9' x 9' Spacing	7' 0"	Favorable	3-5-5-0	5-9	8-12	16-22	5-7	7-11	11-18	...
		Average	2-5-3-5	4-7	6-9	10-16	3-5	4-7	7-11	...
		Unfavorable	1-5-2-0	3-4	4-6	7-10	2-3	3-4	5-7	...
85-95 Sq. Ft. or 9 1/2' x 9 1/2' Spacing	7' 0"	Favorable	3-4	6-8	8-11	14-19	4-6	5-9	10-14	...
		Average	2-3	4-6	5-8	9-14	2-5-4-0	3-5-6-0	7-10	...
		Unfavorable	1-5-2-0	2-5-4-0	4-7	...				

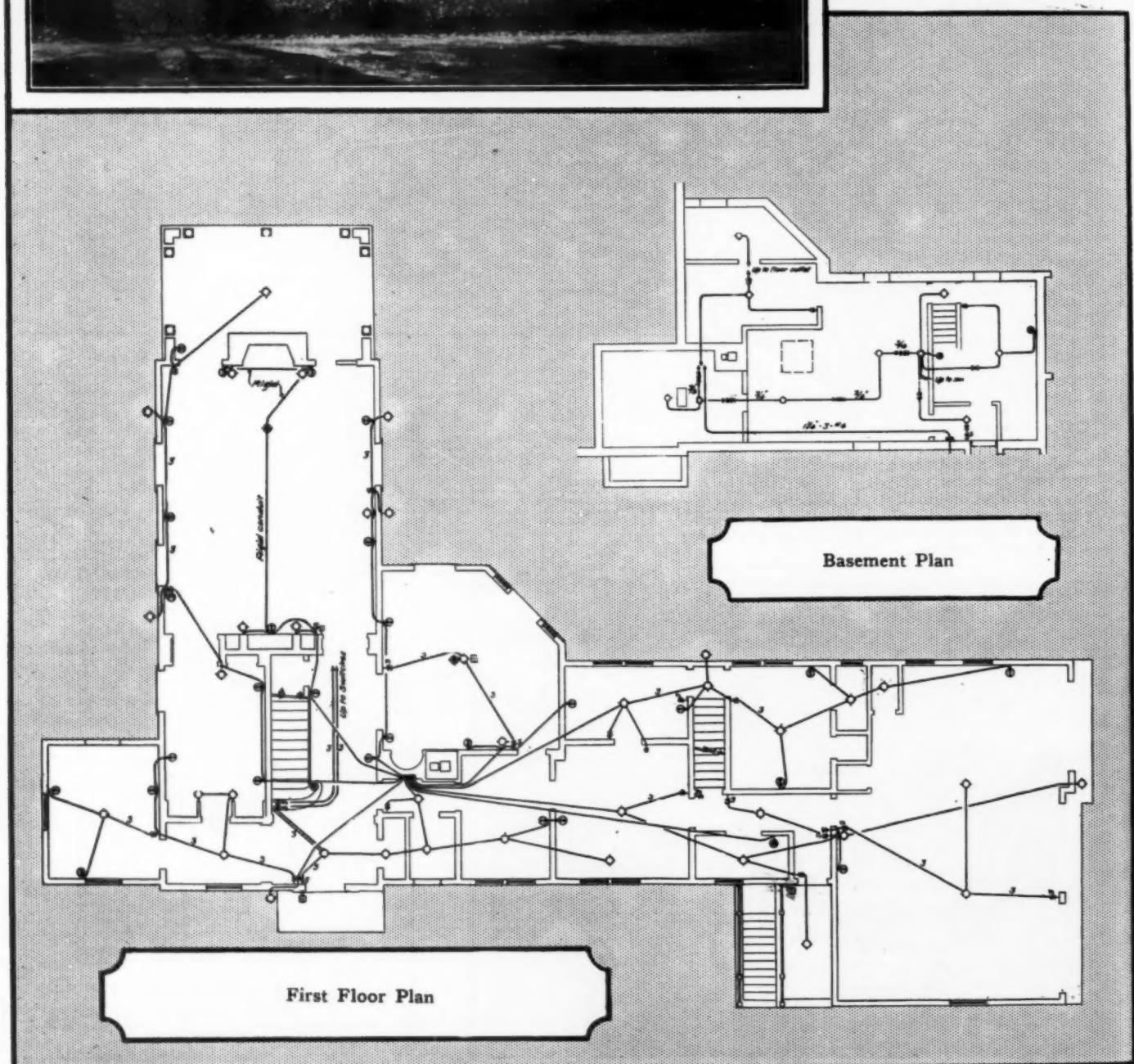
Office lighted to 8-12 ft. candles with 200-watt semi-indirect units, four per bay. Notice on plan the outlets as originally planned by architect and the Franklin layout as finally installed.





Estimate of a Twenty-Two WIRING

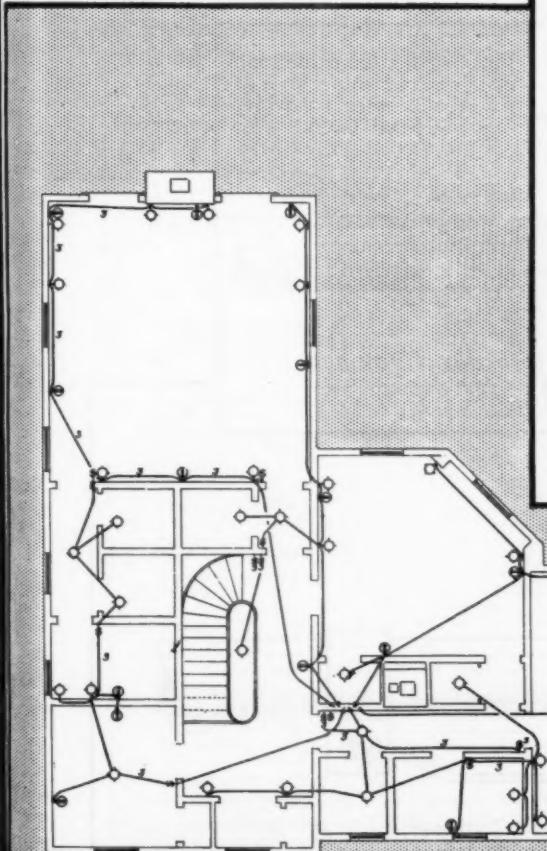
Dwight James Baum
Riverdale-on-Hudson, N. Y.
Architect



Circuit No. JOB

Material quantities and labor hours required for Syracuse home wired in conduit and armored cable.

By A. L. ABBOTT



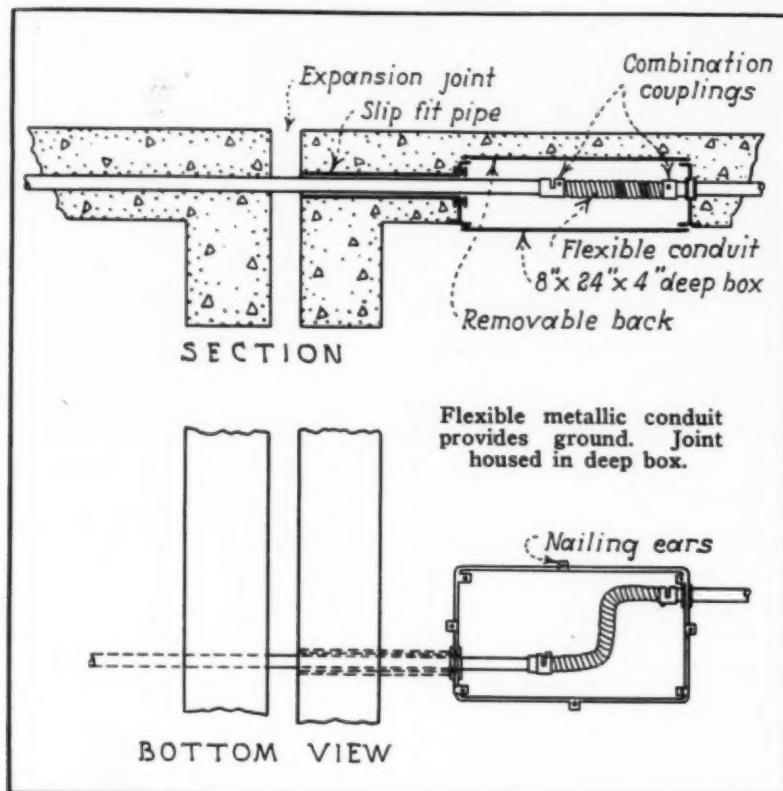
CONTRACTING

MATERIAL AND LABOR SURVEY

Material Quantities	Unit Hours	Labor Hours	Total Hours
½ in. Conduit	270 ft.	3.75 per C ft.	10.10
¾ in. Conduit	40 ft.	4.50 per C ft.	1.80
1¼ in. Conduit	50 ft.	4.30 per C ft.	2.15
1¼ in. Ls	4	1.30 ea.	5.20
1¼ in. Terminals	4	.40 ea.	1.60
½ in. Locknuts and Bushings..	25		
¾ in. Locknuts and Bushings..	10		
1¼ in. Locknuts and Bushings.	2		
½ in. Grounding Bushings	1	.40 ea.	.40
1¼ in. Grounding Bushings....	4	.40 ea.	1.60
½ in. Grounding Fitting	1		.60
Pull Box 12x12x6	1		.80
60-amp. 3 P. Service Switch....	1		2.20
Meter Board	1		2.00
Pipe Straps 1¼ in.	8	.05 ea.	.40
No. 14 Wire	1000 ft.	8.00 per M ft.	8.00
No. 8 Wire	26 ft.	13.00 per M ft.	.34
No. 4 Wire	155 ft.	16.00 per M ft.	2.48
Armored Cable No. 14 2-cond. 1450 ft.			
Armored Cable No. 14 3-cond.. 500 ft.			
Conduit Outlets—			
Floor Boxes	2	1.40 ea.	2.80
FS1 Condulets	5	1.00 ea.	5.00
4-in. oct. Boxes	10	1.00 ea.	10.00
Switch Boxes	5	1.00 ea.	5.00
Cable Outlets—			
Ceiling Outlet Boxes	39	.60 ea.	23.40
Bracket Outlet Boxes	41	.60 ea.	24.60
Switch Boxes	82	.60 ea.	49.20
½ in. Fixture Studs	80		
Outlet Box Supports	80		
Switch Box Supports	82		
Cable Connectors	160		
Receptacles and Plates	50	.25 ea.	12.50
S. P. Switches and Plates.....	25	.25 ea.	6.25
3-point Switches and Plates...	16	.40 ea.	6.40
4-point Switches and Plates...	1		.40
22 circuit Panelboard	1		14.00
15-amp. Plug Fuses	50		
60-amp. Cartridge Fuses	2		
Outside Pushes	2	.25 ea.	.50
Inside Push	1		.25
Floor Push	1		1.00
Bell	1		.25
Buzzer	1		.25
2-drop Annunciator	1		.70
Bell Transformer	1		.40
Bell Wire	250 ft.	.06 per M ft.	1.50
Speaking Tube	15 ft.		2.00
Mouthpieces	2		
Miscellaneous Material	\$20.00		
			206.07
Allowance for lost time and miscellaneous labor			43.93
Total hours labor			250.00

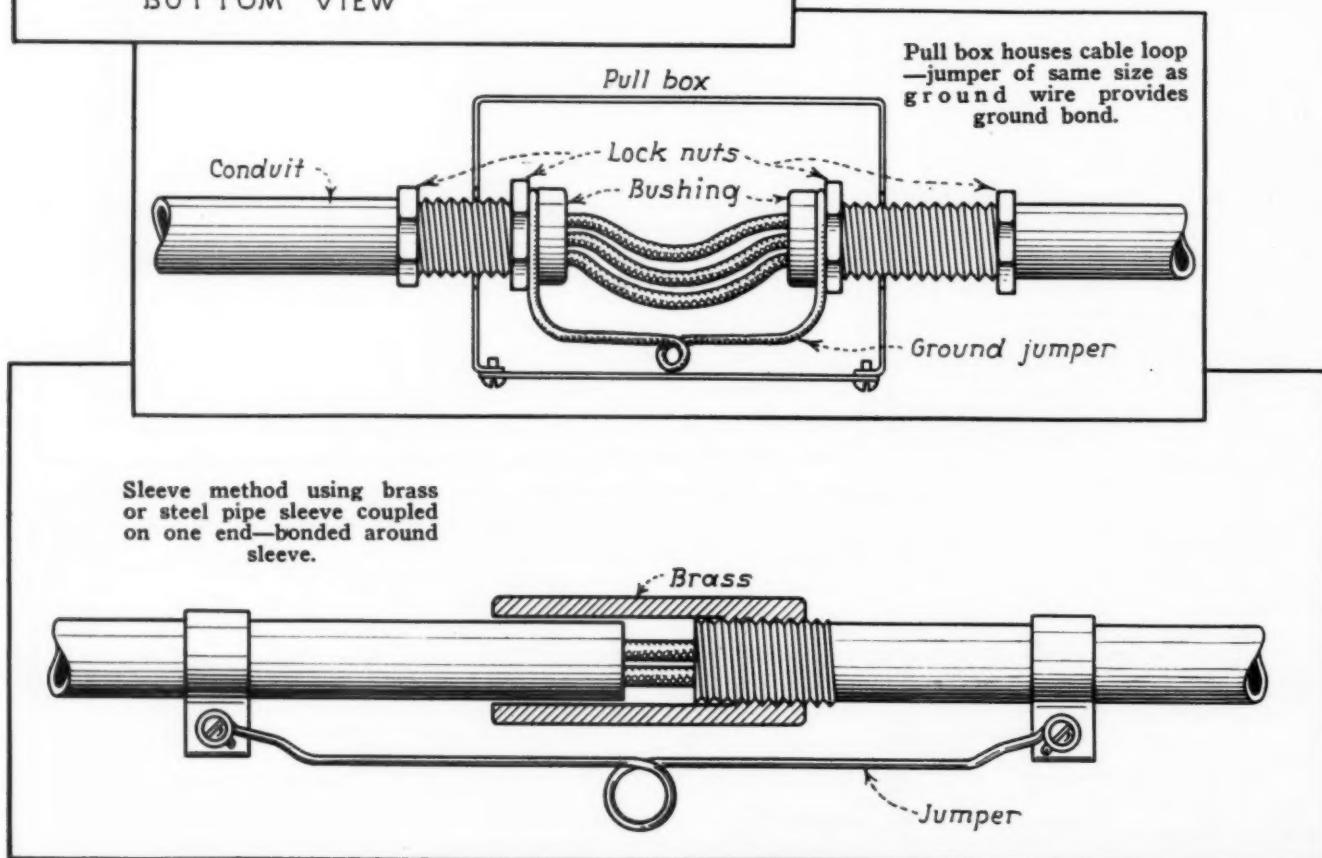
Second Floor
Plan

How to Install EXPANSION JOINTS



A reader asked ELECTRICAL CONTRACTING for information on the best practice in installing expansion joints in conduit to take care of expansion and contraction due to severe temperature changes.

The three methods most commonly used are given on this page. In every case, some means should be employed to bond the conduit ends together. A tight sleeve will not be sufficient.



Rule of Thumb Method for Estimating Floodlighting

Three simple tables for calculating number and style of floodlights for proper illumination of ordinary buildings. Consult illuminating engineer for more complicated problems.



By E. H. WHEELER

Illuminating Engineer, Reflector & Illuminating Co., Chicago, Ill.

THE first table gives the number of floodlights required for sufficient illumination.

Table II gives the beam spread found most desirable for a building of a certain minimum dimension (for most buildings this minimum dimension is generally the width or height) when the

floodlights are located at a given distance from the building. The different makes of floodlights on the market can generally be divided into four classifications according to beam spreads, namely, 15° and less, 16° to 29°, 30° to 49° and 50° and over.

Table III gives the number of floodlights required

TABLE I.
AN ESTIMATE OF THE NUMBER OF FLOODLIGHTS REQUIRED BASED ON USING 1000 WATT P. S. 52 LAMPS

Building Material	Character of Surroundings	AREA IN SQUARE FEET TO BE FLOODLIGHTED										
		2500	5000	10000	15000	20000	25000	30000	35000	40000	45000	50000
White or Very Light Colored Terra Cotta White Marble	Bright	4	8	16	24	32	40	48	56	64	72	80
	Medium	3	6	12	18	24	30	36	42	48	54	60
	Dark	2	4	8	12	16	20	24	28	32	36	40
Select Gray Limestone Bedford Stone Buff Limestone Smooth Buff Face Brick	Bright	6	12	24	36	48	60	72	84	96	108	120
	Medium	4	8	16	24	32	40	48	56	64	72	80
	Dark	3	6	12	18	24	30	36	42	48	54	60
Briar Hill Sandstone Smooth Gray Face Brick Med. Gray Limestone	Bright	8	16	32	48	64	80	96	112	128	144	160
	Medium	6	12	24	36	48	60	72	84	96	108	120
	Dark	4	8	16	24	32	40	48	56	64	72	80
Common Tan Brick	Bright	10	20	40	60	80	100	120	140	160	180	200
	Medium	8	16	32	48	64	80	96	112	128	144	160
	Dark	6	12	24	36	48	60	72	84	96	108	120
Dark Field Gray Brick (Rough Finish) Common Red Brick Brownstone	Bright	14	28	56	84	112	140	168	196	224	252	280
	Medium	10	20	40	60	80	100	120	140	160	180	200
	Dark	8	16	32	48	64	80	96	112	128	144	160

Using 750 Watt P. S. 52 Lamps Multiply Number of Floodlights by 1.4
Using 500 Watt P. S. 40 Lamps Multiply Number of Floodlights by 2.2
Using 500 Watt G-40 Lamps Multiply Number of Floodlights by 2.6

Using 400 Watt G-30 Lamps Multiply Number of Floodlights by 2.8
Using 300 Watt P. S. 35 Lamps Multiply Number of Floodlights by 4.0
Using 250 Watt G-30 Lamps Multiply Number of Floodlights by 6.0

TABLE II
GUIDE FOR SELECTION
OF FLOODLIGHTS OF
PROPER BEAM SPREAD

Narrowest Dimension in Feet of Building Face to be Floodlighted	DISTANCE IN FEET OF PROJECTORS FROM BUILDING FACE						
	10 to 25	25 to 50	50 to 75	75 to 100	100 to 150	150 to 200	200 to 300
15	30° to 49°	16° to 29°	15° and Less				
15 to 25	30° to 49°	16° to 29°	16° to 29°	15° and Less	15° and Less	15° and Less	15° and Less
25 to 50	50° and Over	30° to 49°	16° to 29°	16° to 29°	15° and Less	15° and Less	15° and Less
50 to 75	50° and Over	50° and Over	30° to 49°	30° to 49°	16° to 29°	16° to 29°	15° and Less
75 to 100	50° and Over	50° and Over	50° and Over	30° to 49°	30° to 49°	16° to 29°	16° to 29°
100 to 150	50° and Over	50° and Over	50° and Over	50° and Over	30° to 49°	30° to 49°	16° to 29°
150 to 200	50° and Over	50° and Over	50° and Over	50° and Over	50° and Over	30° to 49°	30° to 49°

for complete coverage. It must be remembered that the numbers given in Table III do not obtain unless the beam spreads determined from Table II are strictly adhered to.

In case the number of floodlights determined from Table I is less than that required for complete coverage as determined from Table III, equipment using smaller wattage lamps should be used and more of them employed. Under Table I are given factors for determining the number of units using smaller wattage lamps required to produce the same intensity of illumination as would be produced by using a given number of the 1,000 watt units on which Table I is based.

For example: If from Table I it was found that eight 1,000 watt floodlights are required for sufficient illumination and from Table III twelve required for complete coverage, multiply eight by the 750 watt lamp factor 1.4 and the result is 11.2 or practically twelve 750 watt floodlights required. This number checks with that of Table III and so twelve 750 watt floodlights would be the correct equipment to figure on. In general, it will be found that when the beam spread recommended in Table II is used, the number of floodlights obtained from Table I for sufficient illumination will be greater than that obtained from Table III for complete coverage, and the numbers arrived at from Table I will not have to be changed. This does not hold, of course, for close mounting distance, as from ten to twenty-five feet.

Whereas, Table III gives the minimum number of

floodlights required for complete coverage, it will be found desirable in the case of narrower beam spread equipment to double these values as so often lamp filament images cause dark lines.

To illustrate how simple these tables are, let us take a couple of concrete examples:

I. *It is required to floodlight a light terra cotta building, 55 ft. high and 60 ft. long on the front, and 125 ft. on the side mounting floodlights on posts at curb 15 ft. from building. Brightly lighted district. This is the building pictured on the preceding page.*

Area of building— $55 \times (125 + 60) = 10,175$ sq. ft.

(a) Table I gives 12—1,000 watt floodlights.

(b) Table II gives 30°—49° beam spread.

(c) Table III gives 20 floodlights required.

(d) Multiply (a) by 500 watt G-40 lamp factor— $12 \times 2.6 = 31.2$.

Summary:

32—500 watt G-40 30°—49° floodlights required.

II. *It is required to floodlight a select gray limestone building 85 ft. long by 60 ft. high, mounting floodlights across the street a distance of 75 ft. from building. Brightness of surroundings—Medium:*

Area of building— $85 \times 60 = 5,100$ sq. ft.

(a) Table I gives 8—1,000 watt floodlights required.

(b) Table II gives 30°—49° beam spread required.

(c) Table III gives 8 floodlights required.

Summary:

8—1,000 watt, 30°—49° floodlights required.

TABLE III

MINIMUM NUMBER OF
FLOODLIGHTS REQUIRED
FOR COMPLETE COVER-
AGE BASED ON RECOM-
MENDATIONS OF
TABLE II

Distance in Feet From Floodlighted Area to Projectors	AREA IN SQUARE FEET TO BE FLOODLIGHTED										
	2500	5000	10000	15000	20000	25000	30000	35000	40000	45000	50000
10 to 25	8	14	20	30	40	50	60	70	80	90	100
25 to 50	6	8	10	10	10	10	12	14	16	18	20
50 to 75	6	8	10	10	10	10	10	10	10	10	10
75 to 100	4	8	8	8	8	10	10	10	10	10	10
100 to 150	4	6	6	8	8	8	8	8	8	10	10
150 to 200	4	6	6	6	6	8	8	8	8	8	8
200 to 300	4	4	4	6	6	6	6	6	6	6	8

For buildings where the height does not exceed four times the width nor the width four times the height.

ONE House

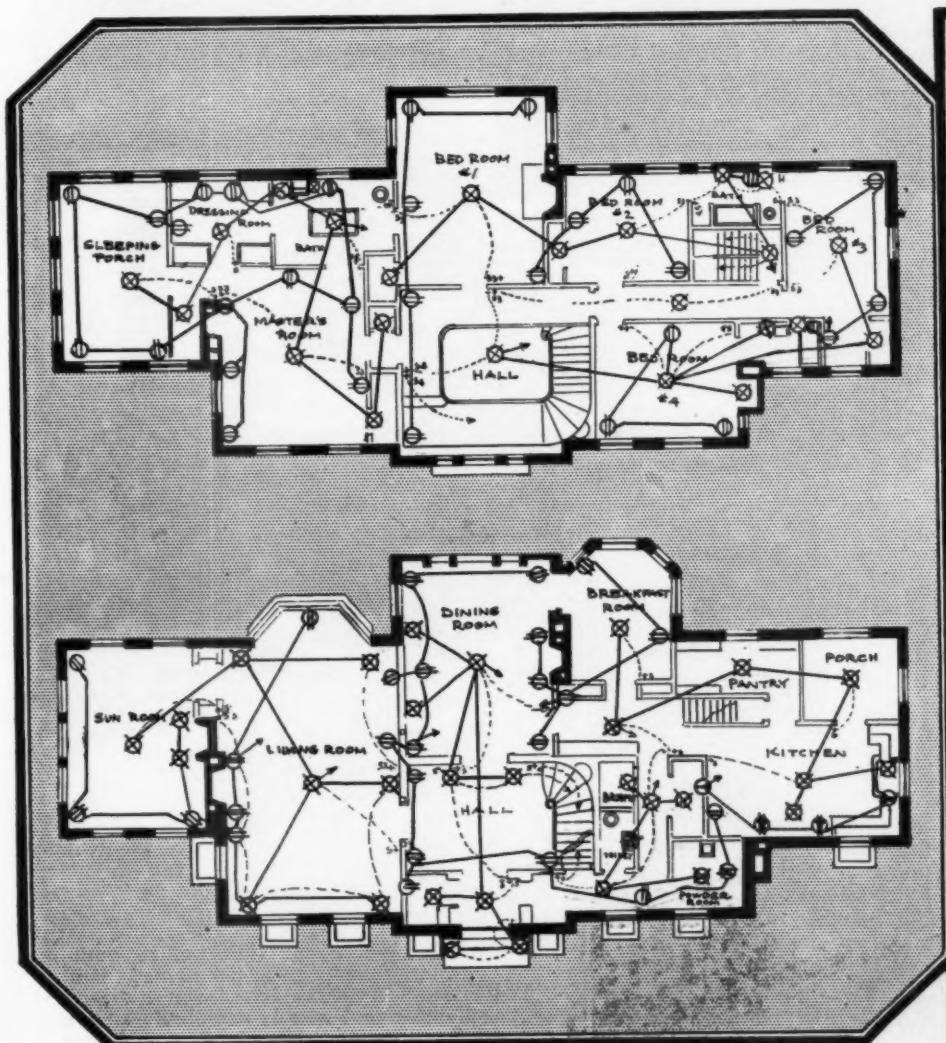
with 251 Outlets

Wiring lay-out by E. T. Tanner, architect for J. C. Nichols Co., builders.



Recently completed sixteen-room home of Thomas J. Pendergast, Democratic Leader of Kansas City, Mo.—A record Red-Seal job for Kansas City.

C. E. Burkholder, of Burkholder Electric Co., the contractors who wired this house.



Schedule of WIRING OUTLETS

- 66 ceiling
- 30 bracket
- 17 1-way switches
- 48 3-way switches
- 76 duplex convenience outlets
- 5 4-way switches
- 3 built-in heaters
- 1 refrigerator
- 1 range
- 1 ventilating fan
- 1 dishwasher
- 2 special

In addition there are 5 telephone outlets. Average outlets per room
15.7

New ELECTRAGISTS

With the Other National Electrical Associations, the Association of Electragists, International, is Located in the Graybar Building, 420 Lexington Avenue, New York City. The New Offices as Shown Are Much More Attractive Than Those Formerly Enjoyed.



General Manager Laurence (Larry) W. Davis, putting the finishing touches on his annual report, recording the Association's financial position and general activities as the strongest in its history.



Reception room with a glimpse of two of the offices, and of two attractive members of the staff.

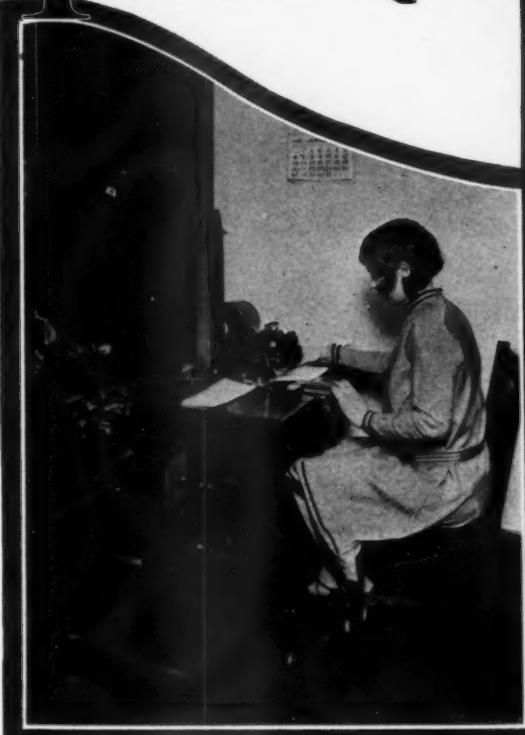


Hobert (Hobe) W. Barnes (above), assistant to the general manager, studying a knotty problem from a member.

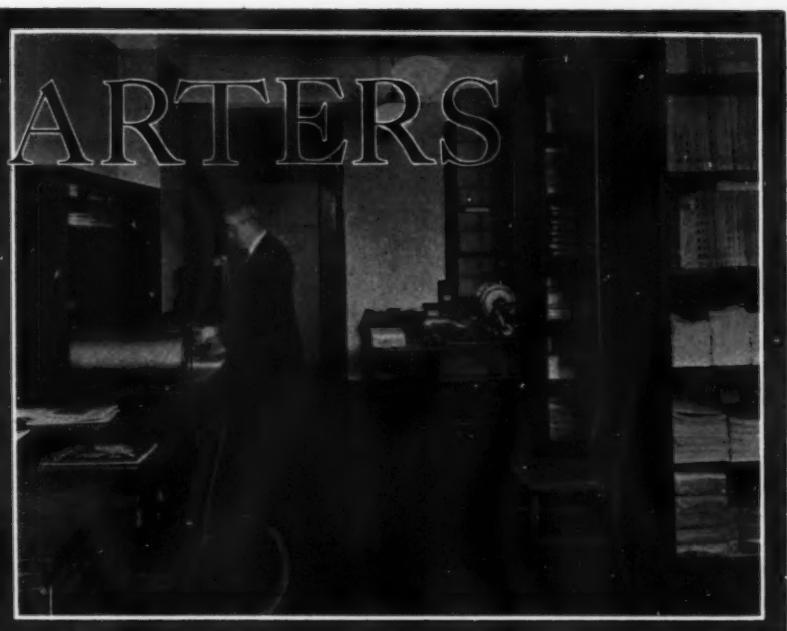


Miss May E. Caslin (left), office manager and bookkeeper, whose name is familiar to all electragists through correspondence and who is personally known to many through her pleasant greetings at Convention registrations.

HEADQUARTERS

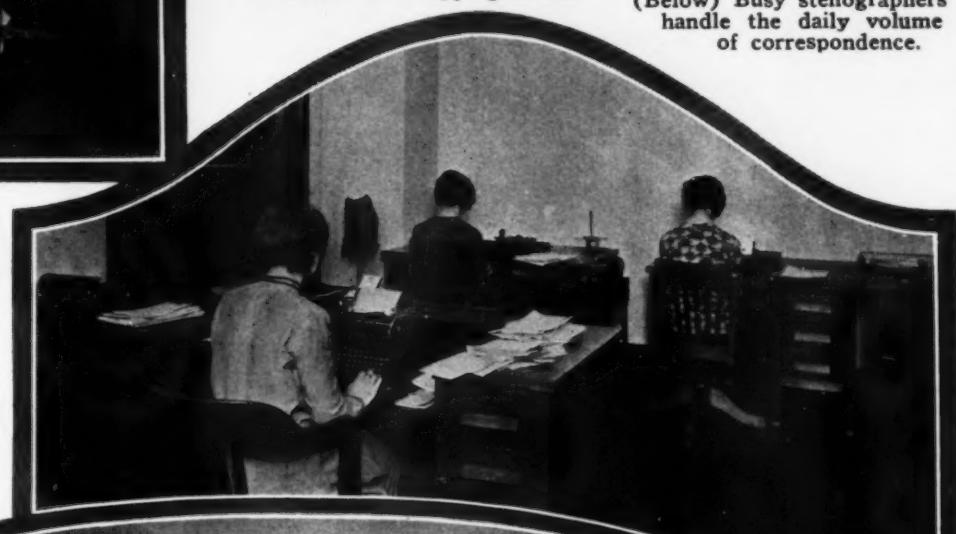


(Above) A corner of the addressograph department.



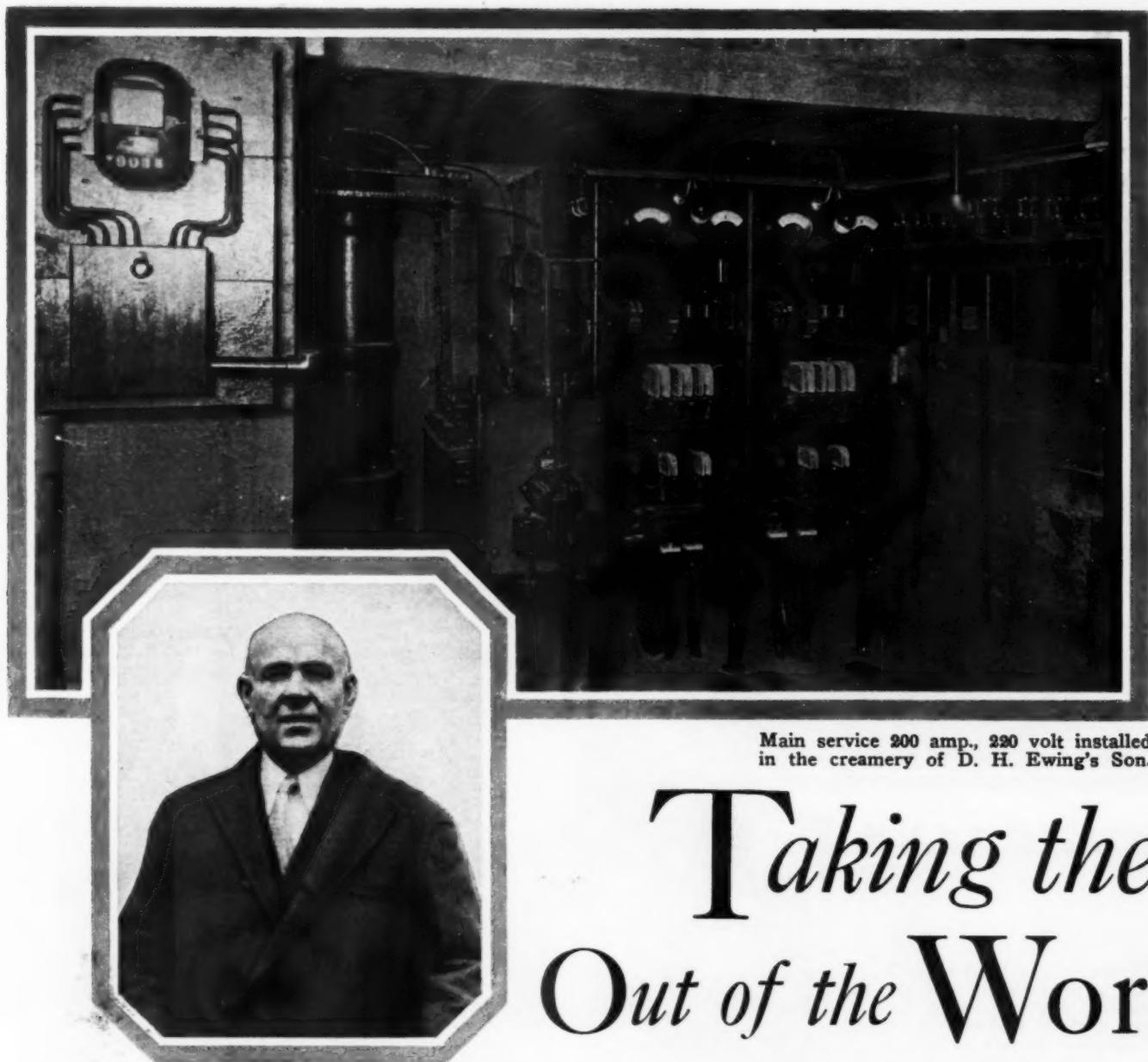
(Above) T. F. McNamara, who has handled the supplies for many years, with a view of one end of the stock and shipping room.

(Below) Busy stenographers handle the daily volume of correspondence.



(Below) The headquarter's staff in the Committee Room studies the procedure for handling the applications for chapter charters of local associations.





C. C. Childers, president of
Childers Electric Co., Louis-
ville, Ky.

Main service 200 amp., 220 volt installed
in the creamery of D. H. Ewing's Son.

Taking the Out of the Work

By C. C. CHILDERS

President, Childers Electric Co., Louisville, Ky.

WE KEEP our men the year round and therefore cannot afford to have any slack time. Neither can we wait too long in signing up jobs to do when our men come away from completed work.

So we have worked out a system for keeping track of various jobs we can get and for hunting up additional work to keep all our men busy.

It works out something like this. Our superintendent, A. C. Vogel, lets me know a week or ten days in advance that on a certain date or thereabouts we will reach the point where some of the men will be idle.

I immediately pass this warning signal on to all our people, especially the outside men. Each of us has a definite list of places where we can go to

solicit the wiring of all or part of some plant that needs attention. Usually these prospects are sufficient to tide us over, but if necessary we bustle around and dig up some brand new ones.

When doing a wiring or installation job for a customer, we always try to sell the idea of more work, if we see the need of it. In discussing these improvements we often find the prospect receptive, yet not exactly ready to have the work put in. In this case we file the information and when we see a slack period approaching we bring the work mentioned to the prospect's attention again.

This system is beneficial to our business in three distinct ways:

1. Because it keeps us constantly checking up

(Continued on page 56)

Additional service installation, 440 volts, 3 phase, 150 horse power, in the plant of the Van Camp Packing Company.



Separately housed electrical equipment for furnishing compressed air for all purposes in the construction of the new B. & O. Bridge across the Ohio River at Louisville.



SLACK Sheet

Part of service installation made in the plant of Bayless Brothers & Company for the purpose of combining the light and power circuits. Installation was made without shutting down the plant.





Instead of Using a Hickey on the Floor or Other Methods Where, Because of Leverage More Pipe Has to be Used Than is Required, Use a Vise as Shown and Make Neat, Sharp Bends with Exactness and Without Waste.

In setting up the bench, locate it where there is 4 ft. or 5 ft. clearance on each side so that a back bend to left or right can be made. For ease in working, set bench 38 in. from floor to top of 2x4, and have everything needed to prepare pipe within reach.

Save Time and Energy Bending Pipe in a VISE



Keep pipe on bench where it is needed and save reaching to the floor for each length. Make the bends on the coupling ends, as the open ends are usually tapered a bit more and therefore harder to lock.

Measure the pipe from the face of the jaws of the vise, allowing $\frac{1}{2}$ in. more than the desired length of bend.





Now slip on hickey up close to the vise, pull around gradually, each time allowing hickey to travel a little with each pull, thereby keeping pipe from kinking.

Here is the finished bend and right to the inch.

The top bend was made with a hickey on the floor and took almost twice as long to make. If used as a floor bend it would require three to four times more floor cutting than the vise made bend.



Electrical Contracting

With Which Is Incorporated The Electragist

S. B. WILLIAMS
Editor

Leagues Need Money

AN ELECTRIC league is the industry's representative. As such it should present a prosperous and large front. When limited in its budget to \$10,000 or less, a league cannot function successfully. Its finances are so limited that everything it does is small. Unless it be very fortunate, it cannot hire a large minded manager. How then can such an organization be expected to do large things or to be impressive in its contact with the public, with the newspapers, with the architects, with the city hall or with the industry itself?

Out of the budget must come salaries, rent, telephone, supplies and sundry office expenses. After paying the overhead, how much will be left to do the work?

Some leagues have taken promising young men and made them managers. They have worked hard and with the money available, have done wonders. These men, however, are not going to stand still and unless the league work is made more attractive financially, they just naturally will leave. Some have done so already, and others are on the fence.

Our only suggestion, therefore, is—don't lend encouragement to the starting of a league unless there is enough money to do a real job. You can't make bricks without straw.

Now in the Picture

THE league managers' meeting in Cleveland last month stands out for several reasons, but principally because there was no voice raised against the electrical contractor. It was remarkable that men coming from all corners of the country and Canada, men whose job it is to develop local markets for electricity and its application, should show no hesitancy in declaring that the contractor was an important part of the indus-

try and as such should enjoy better trade relations and be helped in every reasonable way.

The time for exploiting the contractor is over. His problems concern everybody who has the best interests of the industry at heart. Some of his problems are fanciful and are easily wiped out. Many are of his own making and will require a lot of education to remove. But not a small number can be traced to the door of others in the industry.

In ironing out these differences the leagues can help. Progress has been made in this direction and with this new attitude on the part of the industry toward the contractor, even greater progress will result.

We urge the contractors, whenever help of this kind is offered, to meet the industry half way. Forget the past and look to the future. And if during initial steps of the effort, some mistakes are made on the other side, don't forget that the best plan in the world can't be put into practice, 100 per cent, over night.

Who Wants All Conduit?

IN THOSE cities where all conduit ordinances are being promoted, do the contractors really believe that the use of conduit to the exclusion of all other wiring methods is to their advantage? Do they realize that by confining electrical work to the most expensive methods they are (1) reducing their market, (2) encouraging wiring work by non-electrical people, (3) giving assistance to those central station people who are complaining that the price of wiring is too high and that some cheaper methods must be found?

Conduit, without a doubt, makes the best job in the long run but it is also the most expensive. For residential rewiring its cost is prohibitive. If it is contended that some other form can be used for extensions, the

whole argument falls through, for what is good for extensions must be good for new work of the same character.

The extensions, however, will be made but not by licensed contractors. The hardware and five and ten cent stores will do a nice business in wiring materials to be installed by some non-electrical man.

An all conduit ordinance will not hurt the big contractor because that is his method anyway. In fact it might help him a bit. The man who gets hurt is the small contractor. He gets hurt because his market is curtailed and because of the non-electrical competition.

Every form of approved wiring has an economic place. The field of each wiring method is covered in the National Electrical Code. This fact should be recognized whenever a new ordinance is proposed.

Ordinances that tend to increase the cost of wiring needlessly are not advantageous to the rank and file of electrical contractors.

Will Lamp Market Be Unsettled?

THE fundamental tungsten lamp patents run out next month and at that time a heavy influx of foreign made lamps is expected. These foreign lamps will undoubtedly be offered at a price which will look attractive to dealers and the public.

Electrical contractors, however, are urged to remember that the imported lamps, while they may look like American lamps, are but imitations because of patents covering later inventions. The character of the merchandise must be considered by an electrical contractor before he handles it. If the lamps are poorly made and are offered here purely as a competitive product, those who handle them may find a boomerang effect.

As soon as the patents expire there will also be more American made lamps offered by manufacturers who have had a limited production to date.

It is to be hoped that this sudden release of additional production, both of American and foreign lamps, will not bring about an unsettled retail situation. The manufacturers of Mazda lamps have of course done everything they can to protect the market against the invasion.

There are two things, however, which need further attention. One is the way in which central stations are allowed to sell

and give away lamps while the dealers must sell only at the schedule price. The other difficulty is in connection with the reduction in price without an alteration of discounts. Every time the price is reduced the dealer must sell just so many more lamps in order to make the same gross profit. This involves more effort, time and expense so that, although the dealers' volume in number of lamps is larger, their profit is smaller.

In all fairness to the dealer, the manufacturers should put all selling agencies on the same basis. It is an unfair regulation that makes laws for the dealers but none for the central station.

It is also suggested that the manufacturers reduce the limits of the several agency discount steps as a compensation for the several reductions in the price of lamps.

McCleary

Retires

EARNEST McCLEARY of Detroit, one of the most interesting figures in national association work in the electrical contracting industry, retired last month to rest and play after forty-four years in the harness.

A charter member of the Association of Electragists, International, a member of the first board of directors, the second president, chairman of the code committee until 1916 and again a member of the executive committee in 1925, "Mac," as he is known from coast to coast, has been one of the half dozen strong men in the association. He has been the stormy petrel of the association. Never satisfied to be a "yes" man the expression of his attitude on any question, be it right or wrong, made people think.

If there is one weakness in association work, it is the sheep-like attitude of members ever ready to be satisfied to let somebody else do it, and ever ready to vote "Yes" on every question. It is the "no" man, the man who demands to be shown, the man who takes the opposite side to a popular question, who is an asset to an association, because the members who then vote "Yes," do so with full knowledge of what they are doing.

There are only a few members of the association left, who were present at the original Buffalo meeting, and to them the industry owes a debt of gratitude for the time and energy they have given to this movement.

Code Chats

A Monthly Discussion of Wiring Practice and Questions of Interpretation, Presented with a View Toward Encouraging a Better Understanding of the National Electrical Code - - - - -

Conducted by F. N. M. SQUIRES

Assistant Chief Inspector, N. Y. Board of Fire Underwriters

Conduit Sizes for Wire Combinations

Rule 503-p limits the number of conductors which may be installed within one conduit and gives three tables governing, besides the number of wires allowed in any given conduit, the size conduit required for a given number of conductors.

There are, however, numerous installations in which a combination of various sized wires are used and these tables prove inadequate to cover them. The footnote following Table 3 (Page 43) covers this condition and recommends "that the conduit be of such size that the sum of the cross sectional areas of the several conductors will not be more than 40 per cent of the interior cross sectional area of the conduit."

Following is a table which is found to be very useful in this connection:

WIRE			CONDUIT				
Size	Diameter Inches	Area Sq. Inches	Size Inches	Inches Act. Diam.	Area Sq. Inches	40% of Area	
0000 strd. dbl. br.	.860	.581	$\frac{1}{2}$	$\frac{5}{8}$	.3068	.1227
000	.810	.515	$\frac{3}{4}$	$\frac{11}{16}$	.5185	.2074
00	.760	.454	1	1	.7854	.3142	
0	.710	.396	$\frac{1}{4}$	$\frac{1}{4}$	1.2272	1.4909	
1	.660	.342	$\frac{1}{2}$	$\frac{1}{2}$	1.7671	.7068	
2	.565	.251	2	2	3.1416	1.2566	
3	.540	.229	$\frac{1}{2}$	$\frac{1}{2}$	4.9087	1.9635	
4	.500	.196	3	3	7.0686	2.8274	
6	.460	.166	$\frac{1}{2}$	$\frac{1}{2}$	9.6211	3.8484	
8 solid sgl. br.	.265	.055	4	4	12.5660	5.0264	
10	.240	.049	5	5	19.6350	7.8540	
12	.215	.036					
14	.190	.028					

In using this table take the sum of all the "areas" of the conductors and then find the nearest higher number under "40% of area" of conduit and from this

note the corresponding trade "size" of the conduit required.

For example, to find the size conduit to contain 3 No. 10, 3 No. 6 and 3 No. 2 wires

Area No. 10—.049 multiplied by 3—.147
Area No. 6—.166 multiplied by 3—.498
Area No. 2—.251 multiplied by 3—.753

Sum 1.398

Next higher "40% of area" is 1.9635 which is area of $2\frac{1}{2}$ -in. conduit, the size required.

* * *

Thermal Cutouts Must Be Fused

Some confusion has arisen over references to "Thermal Cutouts" in the Code. As there are now several forms of thermally operated mechanisms in use, it must be borne in mind that the term "Thermal Cutout" as used in the National Electrical Code is specifically reserved for a device having a fusible element in its assembly. These

circuit quickly enough to prevent trouble on a short circuit, they do operate to protect a motor against an excessive overload if continued long enough to harm the motor. Thus, they will allow overloads on motors if these do not persist long enough to damage the motors but open the circuit just ahead of dangerous temperature rises in the motor windings.

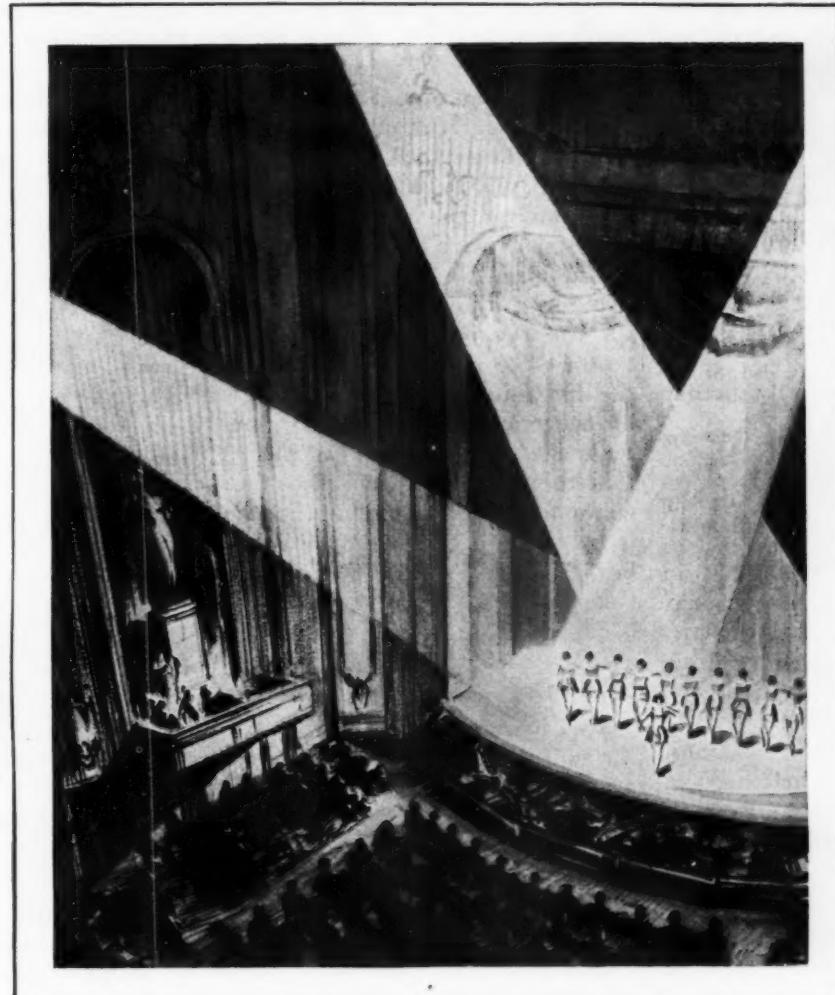
Because of this inherent inability to take care of a short circuit quickly enough, they must have fuses or other overcurrent protection between them and the source of current supply and such overcurrent protection must be of a size not exceeding that given on the markings of the thermal cutout. This size is generally in the neighborhood of 500 per cent of its own rating. This limitation of thermal cutouts is specifically recognized in rule 808-d and more particularly in rule 808-A (5).

Fuse Back on Line

According to rule 808-g, the motor controller may serve as the overload protective device for its motor in the running position if it is equipped with the proper number of trip coils, relays or *thermal cutouts*, as specified in 808-A (6). In the case of thermal cutouts on a controller there must be somewhere back on the line, between the thermal cutout and the source of supply, a fuse or other overcurrent unit meeting the requirements of rule 808-A (5).

There are other forms of thermally actuated mechanisms which will successfully operate to protect against short circuits as well as

devices are not designed to operate safely on short circuits as they are purposely made to have a considerable time lag in their operation. But while they do not open the



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other overcurrent conditions, but they will have to fall under some other nomenclature in order not to be confused with "thermal cutouts."

* * *

Definition of the Word "Weatherproof"

Interpretation 17

QUESTION: What should be the definition of the term "weatherproof" as used with respect to installations of conduit systems in sections 403 and 404 of the 1928 edition of the National Electrical Code?

FINDING: In these sections the term "weatherproof" should be construed to mean "so constructed, installed or protected that weather (rain or snow) will not interfere with its successful operation."

This definition corresponds in form and arrangement with that given in Article 1 for "waterproof." A looser definition might be *rain or snow tight*.

This finding has been referred to Committee on Article 1 (Definitions) for appropriate attention in connection with a subsequent edition of the National Electrical Code.

* * *

Fuse Blocks For Motor Wiring

Interpretation 18

QUESTION: Do sub-paragraphs 3 and 4 of paragraph (a) of section 808 of the 1928 edition of the Code permit cutout bases of a classification smaller than the one which will accommodate the maximum size of fuse specified for motor circuit protection in Table No. 1 of this section, when it is shown that a smaller fuse of the smaller classification would take care of the starting current of the motor?

FINDING: No. The text of paragraph 3 makes mandatory the use of a cutout of a classification which will accommodate a fuse of the maximum rating listed in column 7 of Table No. 1.

COMMENT

The interpretation of the above question was requested because it was felt that the mandatory requirements of rule 808-a (3) and (4) were not quite in keeping with the spirit of Table 1 (of Section 808) which is considered to be a table of minimum and maximum values rather than a table of wire sizes and fuse capacities by which any given motor could be installed. However, the interpretation upholds the severity of the rule and no relief can be afforded until this rule has been modified.

For sake of illustration, let us assume a 5 H. P., single phase, 220-volt motor. Reference to Article 8, section 808, Table 3, gives a running current of 23 amp. In applying Table 1, 24 amp., as given in column 1, is used. According to column 2 the minimum allowable size of wire to be used to feed the motor is No. 8. In column 5 the maximum allowable size of fuses for the *running* protection of the motor is 30 amp. From column 7 the maximum allowable rating of branch circuit fuses is 80 amp. Rule 808, a (3) and (4) requires that the cutout be such as will accommodate *fuses rated not less than is specified* in the table for motor branch circuit fuses, which is, in this case, column 7 of Table 1. This, therefore, would require that a fuse block of 100 amp. capacity be used.

It is found that this 5 H. P. motor will operate successfully with a fuse of 50 amp. which, of course, could be used in a 60 amp. capacity fuse block. Why then, should a 100 amp. fuse block with a 70 amp. fuse be required when better protection would be afforded with a 50 amp. fuse? The technical committee, in wording the ruling as it is, felt that it should be necessary for an electrician, contractor, etc., in

laying out a new job where all of the operating conditions were not known, to provide cutouts large enough to meet the worst conditions and thus remove the temptation to overfuse when frequent blowing of fuses results from the installation of cutouts of too small capacity.

However, where conditions are known and values may be relied upon, it might be well to have provisions whereby the authority enforcing the Code would be empowered to use its discretion in the matter.

* * *

Use Lead Cable for Service

Interpretation 16

QUESTION: May lead covered (multiple) conductor cable without armor or other additional protection to the lead cover be used as service conductors, run on the exterior of the building as provided in the third sentence of paragraph (c) of section 403 of the 1928 edition of the National Electrical Code?

FINDING: Yes."

COMMENT

This would mean then that a lead-covered multiple conductor cable (in appearance similar to the well-known telephone cable) may be strapped directly to the exterior wall of a building.

This raises a question as to
(Continued on page 59)



POWER SPECIALISTS:—On the right is Al W. Ewert, head of Central Electric Co., St. Paul contracting firm. Mr. Ewert is essentially an engineer and specializes in the big stuff, motors, power installations, refrigeration, mechanical engineering, etc. He was for many years with Gordon & Ferguson, St. Paul, as engineer. With him are E. W. Brown, general foreman and his job foreman, Stewart McKay.



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A. E. I.

*News and Service
Information*

*Material for this department is supplied by the headquarters staff of the Association of Electragists, International,
420 Lexington Avenue, New York, N. Y.*

Executive Committee Meeting Program

The semi-annual meeting of the executive committee of the A.E.I. will be held in the committee rooms at the new headquarters of the Association in New York, on Monday and Tuesday, March 11 and 12.

Among the important subjects to be considered will be:

Uniform State Enabling Act and Municipal Licensing Ordinance for Electrical Contractors.

Extension of Detroit Credit Plan through Chapters.

Recommendations and Report of Committee of Relations with Central Stations and the N. E. L. A.

Extension of Technical and Standards work through Chapters.

Apprenticeship Training.

Accident Prevention.

Promotion of name "Electragist."

National Electrical Code Developments; Reports from A.E.I. Representatives at February Meeting of Electrical Committee.

Applications for Charters as A.E.I. Chapters, and Designation of Jurisdictions.

Plans for 29th Annual Convention to be held at Swampscott, Mass., September 30—October 4.

* * *

Building Construction Credits

A credit system for the building industry has been developed from the Detroit Credit Plan, for electrical contractors, by the Allied Construction Industries Committee on which the Association of Electragists is represented. A pamphlet descriptive of this credit system has been distributed to all of the members of the A. E. I.

L. W. Davis, general manager of the association, spoke upon this plan at the January 16 meeting of the Boston Building Congress.

The credit plan for electrical contractors has been found to be applicable only in the larger centers because a strong contractors' organization is essential to the success of the plan. In smaller com-

munities, where there are not a sufficient number of electrical contractors to finance a separate association on the right basis, the Allied Construction Industries offer the opportunity to do the job for the group.

* * *

Local Charter Plan Succeeding

Applications for charter as local chapters of the Association of Electragists, have been approved from fourteen of the largest cities, including New York No. 1 Association and Chicago, and applications are pending from seventeen other communities.

A standard printed form for application for charter has been prepared and is now available. This form sets forth in detail all of the prerogatives of a local association and the essential rules governing local chapters.

NEW ELECTRAGISTS

The following contractor-dealers have made application and been accepted into the A.E.I. since the publication of the list in the January issue:

FLORIDA

Miami:
Abbott Electric Co.
Biscayne Elec. Supply Co.
Ingalls Electric Co.

INDIANA

Anderson:
Indiana Electric Co.
Rogers Electric Co.

Bedford:
Lewis Electric Co.

Bloomington:
Hall Electric Co.

Columbus:
Thomas Electric Co.

Evansville:
J. E. Elliott Elec. Co.
Mathis Lighting Studios

Harding Electric Co.
Newman Electric Co.
Seitz Electric Co.

Princeton:
Gibson Electric Co.

Terre Haute:
Bennett Electric Co.
Dreiman Electric Co.
Economy Electric Co.
Sunbeam Electric Co.

LOUISIANA

New Orleans:
Acme Electric Works
J. E. Hagin
Knaps Electric Co.
Safety Electric Co.
Chas. Schoennagel
Service Electrical Works
Sullivan & Phillips

Union Electric Co., Inc.
Charles Von Salzen

MARYLAND

Baltimore:
Joseph A. Becker

MICHIGAN

Detroit:
Robert J. Armstrong
Decker Electric Co.
Emerson Electric Co.
H. H. Pipper

NEBRASKA

Omaha:
Dundee Elec. & Hardware
Co.
Elmer J. Cusick
R. G. Ford Electric
Gatchell Elec. & Hardware
Co.

Heath Electric Co.
E. A. Joos Electric Co.
LeBron Elec'l Works, Inc.
LeBron & Gray Elec'l
Works

Joe E. Luhr
Sterling Electric Co.

NEW YORK
New York City:
The Electric Motor Repair
Shop

RHODE ISLAND
Wakefield:
Chapman & Bannister

TENNESSEE
Memphis:
Motley Brothers
William Slater Elec. Co.
Lew Tisdale Co.

New GEM Entrance Fitting

2-Position for Horizontal or Vertical Mounting

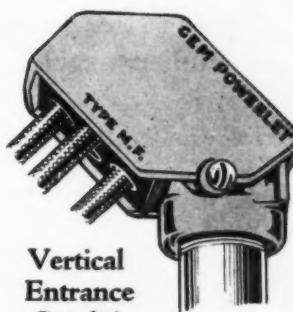


THE new type MF Gem Powerlet Service Entrance Fitting offers contractors a new way to save time on the job... a new way to lower bids and win out over competition.

Think of the ease of installing an entrance fitting which is adjustable for either horizontal or vertical mounting by loosening just one screw—without removing the cover or twisting the wires.

To install the new Gem MF, simply screw the base onto the conduit, pass the wires through the

Phantom view showing how roominess in cap permits easy wiring



cover and replace the cap. Wires are pulled through the conduit with a straight line pull, and pass through the cover holes without sharp bending because of the roominess of the cap.

Two holes and two knockouts permit the use of two, three or four wires.

Contractors who are quick to standardize on this new Gem MF entrance fitting will profit by these advantages. Your wholesaler can supply you.

For many jobs you will need Gem MFF (large size) entrance fittings with oblong covers; also many others of our Midget line of compact fittings with interchangeable covers for inside wiring



Method of assembly for horizontal mounting

Every contractor should have Bulletin MP-1 illustrating and describing the Gem Midget Powerlet line, and price sheet. Write for your copy; also the new catalog No. 33 which explains the advantages of and lists the complete Gem Powerlet Line

CHICAGO-JEFFERSON FUSE & ELECTRIC CO., 1503 West 15th Street, CHICAGO, ILLINOIS

GEM POWERLETS

In the Editor's Mail



Finds Price Service Indispensable

Editor,
Electrical Contracting:

We have just received our January copy of ELECTRICAL CONTRACTING. We have been subscribers to the various electrical trade papers for the past thirteen years, and in all this time we can recall no new idea which has been incorporated with any monthly journal which, in our opinion, equals your new section devoted to Suggested Resale Prices.

If this section could be continued, we should consider ELECTRICAL CONTRACTING indispensable to any contractor or dealer, regardless of the subscription price.

J. T. Craig Electric Co.,

J. T. Craig.

Crafton, Pa.

* * *

Record to Tell Where Tools Are

Editor,
Electrical Contracting:

On page 34 of the January issue of ELECTRICAL CONTRACTING you have a picture of a board with cards, hooks, and tags on it to provide a tool record.

We used to use a record similar to this but recently changed it because it does not fill the bill. The board which you illustrate will tell you what each man has out on the job, and that is all. It does not tell you the main thing you want to know, namely, where your tools

are, and this cannot be determined unless you go over every single tag on every hook on the tool board. If the foreman comes in and wants a 10 ft. ladder or an electric hammer and there are none in the tool room, you may hold a tag for every ladder and every other tool but you cannot tell where they are from the tool record shown on page 34.

To overcome this difficulty we have changed the cards over the individual hooks on our tool cabinet to indicate not the name of the electrician, but the name of the tool in question. The tool checks themselves have a number which is assigned to the electrician, and each one has a set of seven such tool checks, bearing his number. In other words, if we want to know who has out 10 ft. ladders, we look on the hook designated for 10 ft. ladders and we can tell that electricians Nos. 14, 22, and 36, for instance, have 10 ft. ladders out on the job. Similarly for all other tools. In this way we can tell the same thing that you can from the tool record illustrated on page 34, but in addition can tell at a glance where all our tools of each kind are.

This is very essential, as even with an adequate supply of ladders and other tools, you will at times have rush calls for additional ladders, and by checking up to find what jobs those ladders are on, you can determine whether they should be able to spare one or two ladders on some of the jobs and draw them away to supply another

job which is in urgent need of such equipment.

Herman Andrae Electrical Co.,
George Andrae.
Milwaukee, Wis.

* * *

Resale Price Service Wonderful

Editor,
Electrical Contracting:

You are to be complimented on your fine magazine as it is just what the contractor needs.

Your wonderful addition "Suggested Resale Prices" is just what it should be. The method of pricing the materials used on the jobs has been a hit and miss proposition but now with your valuable information we can be exact on the prices and our mechanics can readily find out the selling price of any materials. Then again if our customers should kick about the prices and we can show or explain that these prices are in general use and they will be completely satisfied. As our jobs consist of installing one base plug up to flat and apartment buildings there is always some special items which we do not stock, on which we can quote a price at once by referring to your lists.

Vetter Electric Service,
A. E. Vetter, Manager.
Highland Park, Ill.

* * *

Direct Consumer Sales Evil

Editor,
Electrical Contracting:

In the past few days I have been requested by clients to install electrical equipment which they had already purchased at wholesale prices. We all know of the practices of many manufacturers who sell direct to the larger industrial customers, but it is now frequently being done with small retail consumers in no way aligned with the electrical trade.

The other day a customer, who takes pride in the fact that he can purchase almost anything at wholesale cost, wanted me to install a small exhaust fan which he had already purchased, and intended to also buy some outside lighting fixtures. It is even getting to the point that the customer wants

(Continued on page 57)

Contracting News

Information of interest to Electrical Contractors consisting of items of news, short articles, practical ideas, etc. Our readers are invited to contribute to this department.

State Code Proposed for Oregon

A state electrical code has been proposed for Oregon by F. D. Webber, secretary, Northwest Association of Electrical Inspectors.

According to the plan, the proposed act was to be submitted at the next legislature. The new Code is to be based entirely upon the National Electrical Code and the National Safety Code and is to be controlled by an electrical division created by the commissioner of labor.

* * *

Safety Code Handbook Issued

A discussion of the National Electrical Safety Code in handbook form to accompany the fourth edition of the Code has been prepared by the Bureau of Standards. This is known as Handbook Series of the Bureau of

Standards, No. 4, and may be had upon application to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., for a price of \$1.00.

* * *

Discusses Profits for Small Contractor

Early in January, Andrew H. Blass, of Andrew H. Blass & Co., accountants for the Pittsburgh Electrical Contractors Association, spoke before the Electric League of Pittsburgh on accounting systems, especially for the small contractor and dealer. Mr. Blass used the case method whereby he pointed out actual facts from individual electrical contractors' businesses where the men were losing money but did not know it.

The Electric League of Pittsburgh is now making plans to assist the small contractors in management problems.

Ontario Approved Equipment

The first edition of the list of electrical equipment approved by the Hydro Electric Power Commission of Ontario is now being distributed and may be had upon application to the Commission at 190 University Avenue, Toronto, Ontario.

* * *

New York Association Jubilee

Almost four hundred people attended the twenty-fifth anniversary banquet of the Independent Associated Electrical Contractors and Dealers, Inc., of New York City, held at the Hotel Astor on January 17. This was the largest gathering in the association's history and thanks to Louis Freund, the song leader, the most hilarious.

A. Lincoln Bush as chairman of the entertainment committee and toastmaster, installed the new offi-



Part of the Large Gathering to Celebrate the Independents' Jubilee.



“I got something cheeper”

**Portrait
of a
Contractor**

who used to spend
all his profits “buy-
ing business.”

“Gentlemen:

I'm cured. I used 'cheaper' as a sales argument until I found out that I wasn't making any money. Then I switched to 'Better at the same price,' and today I'm getting more contracts and getting my profit on every job. Of course I can only make good on this new sales argument by using

Wakefield

Bronze Embossed 'RED SPOT' Hangers"

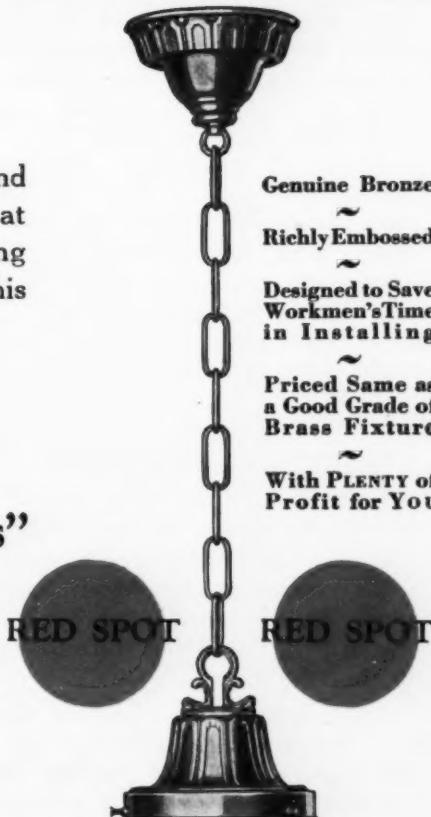
The F. W. Wakefield Brass Company, Vermilion, Ohio.

Please tell me how I can sell BRONZE HANGERS at the same price as brass.

Name _____

Street _____

City _____ State _____



**The F. W. WAKEFIELD
BRASS COMPANY
Vermilion, Ohio, U.S.A.**



COLORADO LEAGUE ADVISORY BOARD:—Members of the newly elected advisory board of the Electrical League of Colorado assembled outside the Denver Union Station after their first formal meeting of the year. The electrical contractors on the board are D. D. Sturgeon (1), chairman; G. A. Graveline (2); E. E. Stettler (3); E. C. Headrick (4); Charles Oehm勒 (5) and L. A. Vosmer (6). ELECTRICAL CONTRACTING was represented by C. A. "Duke" Smith (7). George Bakewell, manager of the league, is at the extreme left in the bottom row.

cers and directors for 1929 as follows:

Albert A. A. Tuna, president; H. M. Walter, first vice president; Irving Gaynor, second vice president; A. Lincoln Bush, treasurer; Nathan Zolinsky, financial secretary; John J. Bauer, secretary; Edwin A. Hasselmeyer, sergeant-at-arms, and Louis Freund, Alfred Whiteley, Fred B. Zenker and John Wilhelm, directors.

Alfred Whiteley and William Munro, two charter members of the association, were each presented with telechone clocks in recognition of the long service and Mr. Freund was presented with a set of resolutions for "his activities in the interest of the Association."

* * *

Baltimore on 1928 Code

The 1928 Code was put into effect in Baltimore the first of the year by Chief Engineer Charles Goob, replacing electrical rules which had been adopted by the city in 1922 and which were based on the 1920 Code.

According to the report of the chief engineer, approximately 25,000 permits are issued annually in Baltimore, each requiring two or more inspections. This work has been undertaken by a force of sixteen inspectors. In order to make inspection service adequate, a revised system of fees is under consideration.

New York Signs Short Week Agreement

A crisis is impending in New York City over the action of the Electrical Contractors' Association (No. 1) in signing a separate agreement with the union for the five-day week independent of the rest of the building trades employers' organizations. This association, which includes virtually all of the larger electrical contractors in New York City, has for years been a supporter of the building trades employers' cooperative bargaining movement.

According to the newspaper reports, which have been checked and appear to be substantially correct, at the annual election for the officers of the No. 1 association, there were two tickets in the field, one known as the Broach, and the other as the Anti-Broach ticket. Broach is the vice president of the I. B. E. W., who was sent to New York to straighten out the organized labor turmoil that had developed there some two years ago. One of the interesting phases of the election was the withdrawal, on the day before the election, of wiremen from jobs being installed by contractors known to be Anti-Broach. The union, of course, denied that this action was taken in any way to intimidate the opposition, but those who have been very close to the labor

situation view such actions with alarm.

The new officers of the No. 1 association are: John W. Hooley, president; Walter Knapp, secretary; J. P. Hall, treasurer. The executive committee members are: Walter H. Taverner; Robert E. Denike; H. F. Fischback; John P. Morrisey and Arthur Henry.

The No. 1 association claims its right to make a wage agreement independent of the Building Trades Employers' Association because of a letter written at the time of their re-affiliation with the combined group, reserving the right to arbitrate labor disputes through an arbitrator or the Council on Industrial Relations. The Building Trades Employers' Association on the other hand, denies this right and has announced its intention of fighting this action by preferring charges against forty-five electrical contractors who entered into the independent wage agreement.

These charges, it was reported, were to have been heard as this paper was going to press and it has been intimated that if this separate agreement is not annulled and if, as a consequence, these contractors are expelled from the Building Trades Employers' Association, that considerable difficulty might arise in the building employment situation in New York City.

Wealthy Contractors

No, one would hardly say that they predominate in this Industry, at the same time quite a number are making money and building a nice reserve fund.

Over 1000 Contractors and Dealers are doing their pricing and quoting from the "NATIONAL ELECTRICAL RESALE PRICE SERVICE." They pay us \$5.00 per month (or 20c a day) to watch over the most vital part of their Business.

If you are not satisfied with the money you have made in the past, we suggest that you have us send you full information about the "NATIONAL ELECTRICAL RESALE PRICE SERVICE." You will be under no obligation but please attach your letter head to the Coupon as the Service is furnished only to those legitimately engaged in the Electrical Business.

Henderson-Hazel Corporation
5005 Euclid Avenue
Cleveland

In Canada

Henderson Business Service Ltd.
Brantford

5005 Euclid Avenue,
Send us full information about the
Henderson-Hazel Corporation
Resale Price Service.
Name.....
Street Address.....
City or Town.....
State.....
E. C. 2-29



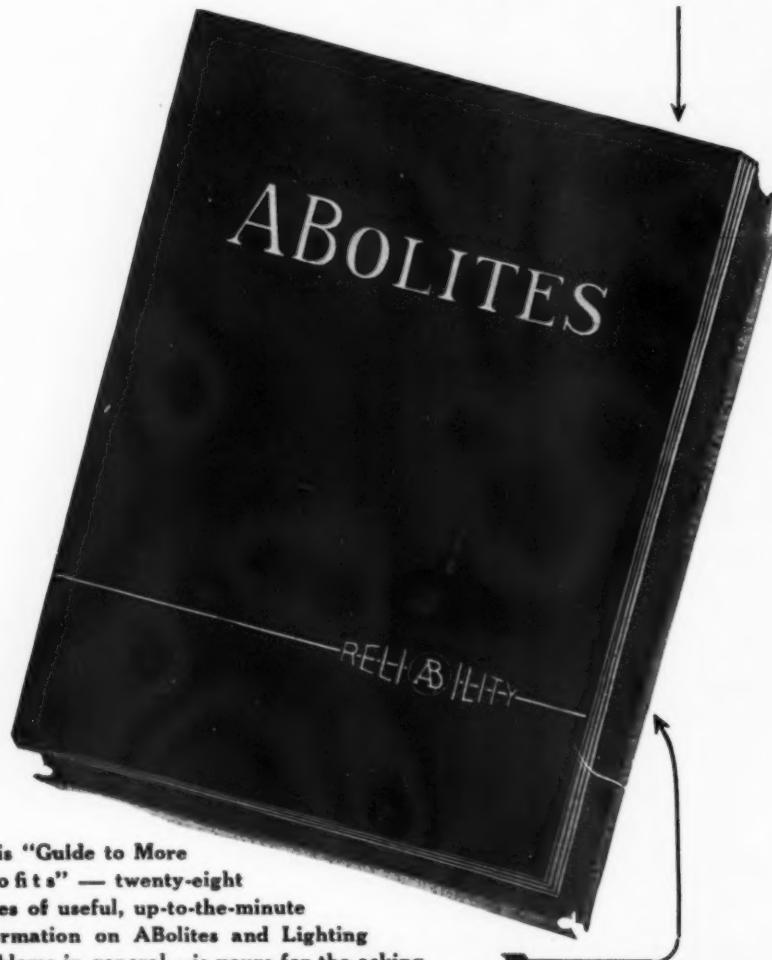
“Boost Your Sales with ABolites”

[Porcelain-Enameled Reflectors]

Your Copy is Waiting

OUR 1929 ABolite Catalog, (No. 180,) was designed to fit exactly your needs. There's a lot of practical, "boiled-down" information on lighting problems—with all the complicated mathematics left out—just the sort of data you'll

want to keep handy. There's a list of new units and accessories which make it easier than ever to "Boost Your Sales with ABolites". And, finally, there's a well-planned index of old and new catalog numbers to make the ordering of your ABolites quick and easy.



This "Guide to More Profits" — twenty-eight pages of useful, up-to-the-minute information on ABolites and Lighting Problems in general—is yours for the asking.

(Write for YOUR Copy TODAY)

The ABolite Reflector Co.

2400 East 75th Street, Cleveland, Ohio



Smith President San Francisco Group

George Smith, Smith Electric Company, San Francisco, Cal., and for the past year president of the San Francisco Electrical Contractors and Dealers Association, was re-elected president for the ensuing



George Smith

year. Fred Wilson, Wilson Electric Company, San Francisco, was elected vice president to succeed Lloyd Flatland, of Globe Electric Company. Victor Lemoge and Ed Martin were re-elected to positions on the executive committee which consists of the two last named and the officers of the association. Earle Brown remains as secretary-manager of the association.

* * *

Cleveland League Plans Electric Homes

After a lapse of a couple of years, the Cleveland Electrical League is going back to the electric home idea of advertising adequate wiring and appliance. The league plans this year to display four electrical homes.

In addition, the league will conduct five community exhibits featuring electric refrigerators and electric ironing machines. In each of these exhibits there will be not only the equipment but also an ironer school, model laundry, model kitchen and food preservation talks.

"USE A KONDU, INSTEAD OF A THREAD"

"This is
Station WTAM--
and KONDU is helping us
get clear broadcasting"

On your next trip to Cleveland, drop in at the Willard Storage Battery broadcasting station and look around the battery room.

You'll soon understand why the reception from WTAM is clear and smooth—and one of the reasons is, that the wiring experts at WTAM use the time-seasoned, perfected KONDU threadless fitting.

Easier to put in—and holds solid

KONDU goes into the line more easily than any fitting we've ever seen—three or four turns of the lock-nuts give a vise-like grip on conduit. And KONDU holds tight—vibration can't shake it loose. No breakage—your KONDU fittings are malleable iron.

Every detail is right

The ground rings inside the bushings cut through the enamel on the conduit, and make a perfect ground. It is unnecessary to scrape enamel from the conduit. The bead inside the bushing protects the insulation. These fittings have been perfected by the experience of many thousands of users.

And easy to take out of the line. Loosen the two lock-nuts, and it slips out just as easily as it goes in, without disturbing the rest of the line.

Let us help you with your wiring problems. When writing us ask for the KONDU Book.

ERIE MALLEABLE IRON COMPANY

Kondu Division
Erie, Pa.

KONDU

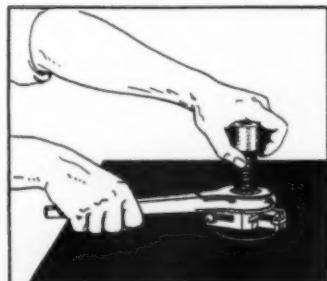
FIRST in the field of threadless fittings—can be taken out of
the line anywhere, at any time



Money Saved is as good as Money Earned

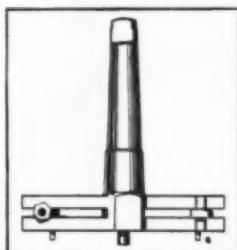
The Jiffy Line of Time Savers is a First Aid to Profits

CONTRACTORS who have used Jiffy Hole Cutters tell us we have done a great service to them in making it possible to do a job in 10 minutes that would otherwise take hours, without exaggeration. The Jiffy Specialties form a real time saving service to the contractor. Every one of them earns its cost over and over again in time saved.



Jiffy Solder Dipper

Solders 50 to 75 joints perfectly with one heat, reaches difficult positions easily. Heats over any flame. Lasts a lifetime.



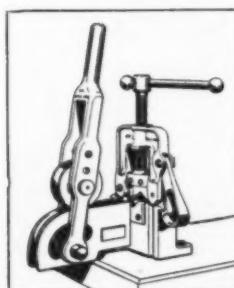
Drill Press Cutter

Cuts holes in sheet metals, cast iron or steel and other heavy work, when used in a standard drill press. Diameters adjustable same as hand-operated types, from $\frac{3}{4}$ " to 6".

Jiffy Hole Cutters

are of course the most famous items in the line. They cut holes in sheet metal, fiber, slate, etc., up to 6" in diameter, in a few minutes. The Jiffy is very easy to use, because the spring supplies

the necessary pressure; and the ratchet makes it possible to work in close quarters.



Jiffy Pipe Bender Vise

Makes difficult bends quickly and easily in $\frac{3}{4}$ " and $\frac{1}{2}$ " conduit. Bends to 2" radius without opening seams, kinking or flattening. No skill required to operate.

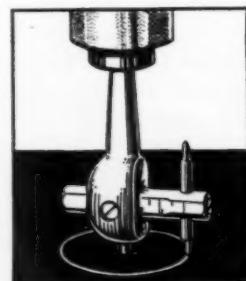
Send for Folder on Complete Line

**PAUL W.
KOCH
and Company**
25 So. Wells St.
CHICAGO, ILL.

ORIGINATORS OF

The Jiffy Line **LABOR SAVERS**

Established 1915



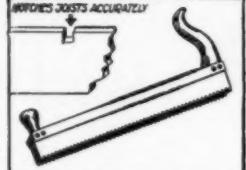
Jiffy Junior

The Jiffy Junior can be used in drill presses. Weighing only a half pound, easy to carry around.



Jiffy Nipple Chuck

For cutting close or short nipples on the job. $\frac{1}{2}$ " or $\frac{3}{4}$ " conduit. Small, light, compact.



Jiffy Joist Notcher

Makes both cuts in joist at once, and parallel. Impossible to cut deep or weaken joist. Adjustable for $\frac{1}{2}$ " and $\frac{3}{4}$ " conduit.

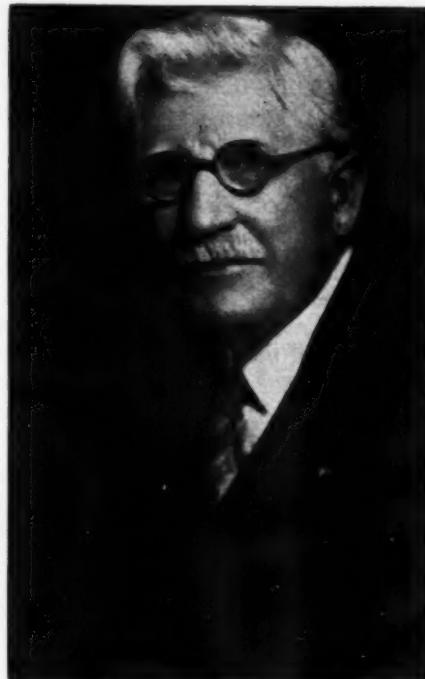
Fort Wayne Association Active Through Winter Months

The contractor's association of Fort Wayne, Ind., reports activity during the winter months, regular semi-monthly meetings being well attended. This is one of the young organizations of the country which has become stronger each year of its existence, and its influence in Fort Wayne is keenly felt. The association was organized three years ago by a small group of contractors, and now has a membership of nearly fifty. H. A. Mertz is secretary.

* * *

Earnest McCleary Retires From Business

After more than forty years of service in the electrical industry, the last twenty-eight as head of one of the largest electrical construction companies in the coun-



Earnest McCleary

try, Earnest McCleary on January 14 announced his retirement from the electrical contracting business and the sale of his interest in the McCleary-Harmon Company of Detroit to the company.

Mr. McCleary was born at East Saginaw, Mich., on June 4, 1865. At the age of twenty he began his electrical career with the Michigan Bell Telephone Company and later

he went with the Edison Company. In 1890 he was made the superintendent of the Fontaine Crossing & Electrical Company of Detroit, holding this position until 1893, when he became salesman and estimator on the construction work for the Electrical Supply & Engineering Company, also of Detroit. In 1897 he was appointed superintendent of that company and in February, 1900, became senior member of the firm of McCleary & Colquitt Company, Ltd., later changing its name to McCleary-Harmon Company.

Charter Member

Mr. McCleary was one of the thirty-one men who responded to the call for a conference at Buffalo on July 17, 1901, at which time the National Electrical Contractors' Association was organized. He was a member of the nominating committee which selected the first set of officers of the association and he was also elected at that time as a member of the original board of directors. The first president was Charles L. Eidlitz of New York, who served for a term of two years, and Mr. McCleary was the second president, being elected in 1903 at the Detroit convention. Mr. McCleary was chairman of the committee handling that convention and had charge of the first electrical exhibit of its kind ever held in this country. He also served as chairman of the code committee until he resigned in July, 1916. In 1925 he again became a member of the executive committee, representing the Great Lakes Division, and serving for a term of one year.

When Mr. McCleary came into the electrical contracting business there was little in the way of experience to guide the wireman, nor had materials and fittings been developed to any great extent. His ingenuity in coping with this situation has found expression in some of the fittings now in everyday use.

Mr. McCleary is retiring now after more than forty years of continuous service in the electrical industry, while still young enough to enjoy play and relaxation.

YOUR CUSTOMER IS ASKING FOR

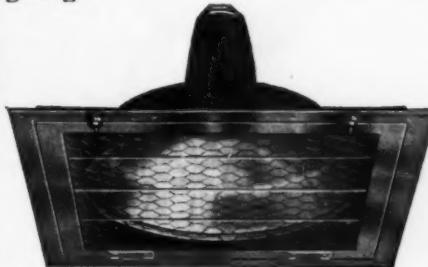


When he says:

"Give me a thoroughly up-to-date job, but don't spend too much."

Whatever the job he's talking about* there is a Bel-Sun-Lite that will do it 100% at very reasonable cost. That makes certain you will not be underbid on any quality job. You can sell them all at a sweet profit.

*Excepting ordinary home lighting.



The most modern fixture for shops, gymnasiums, swimming pools, operating rooms, indoor skating rinks, car barns, and exhibition halls is this Bel-Sun-Lite Diffusing Reflector. It gives a glareless, shadow-free field of vision from 5% to 15% less wattage than other fixtures for the purpose. It lies flush with the ceiling, yet is completely accessible for service. Porcelain reflector, shatter proof wire glass hinged front.

His store front is the most valuable advertisement any merchant can have—yet nearly all merchants are content to have it only 50% visible during the hours most people pass. Bel-Sun-Lite Floods controlled by a Tork Clock keep any store front economically 100% visible—100% selling during the hours when most people pass. Ask yourself, "Who is the most progressive, aggressive merchant in town?" He is the man to become your first floodlight customer. Ask our nearest representative to help you sell.



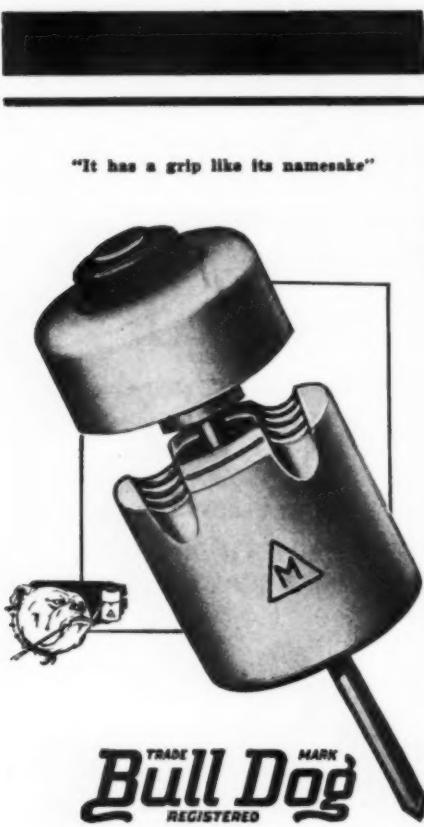
Atlanta, Ga.
Boston, Mass.
Delaware, O.
Ft. Worth, Tex.
Gary, Ind.

Indianapolis, Ind.
Kansas City, Mo.
Los Angeles, Calif.
Louisville, Ky.
Miami, Fla.

Minneapolis, Minn.
New Orleans, La.
Omaha, Neb.
Philadelphia, Pa.
St. Louis, Mo.

San Antonio, Tex.
San Francisco, Calif.
Seattle, Wash.
Tulsa, Okla.
Tampa, Fla.

Belson Manufacturing Co.
804 Sibley St., Chicago, Ill.



Split Knobs

THESE are the safe, approved knobs for all types of residence wiring. They mean better jobs at no added cost. Bull Dog Split Knobs, together with Illinois Porcelain Tubes, Cleats, Solid Knobs and Reversible Square Split Knobs, form a complete line of standard porcelain.

Sold Through Wholesalers.

Illinois Electric Porcelain Co.
Macomb, Illinois

Kuehn Heads Estimators' Section

The Estimators' Section, Northern Division of the California Electragists at its January 9 meeting elected Victor Kuehn, Buzzell Electric Works, as president for the ensuing year, Fred Greisberg, Decker Electrical Construction Company, vice president, M. Kipp, Atlas Electric Company, treasurer and Charles Barkus, of the Drendell Electrical Manufacturing Company, secretary.

* * *

A. W. Robertson Heads Westinghouse Board

Andrew Wells Robertson, of Pittsburgh, president of the Philadelphia Company, was unanimously elected on January 16, chairman of the board of directors of the Westinghouse Electric and Manufacturing Company.

Mr. Robertson is in his 49th year. He was graduated from Allegheny College in 1906, and from the Law School of the University of Pittsburgh in 1910. After practicing law in Pittsburgh, he became general attorney of the Philadelphia Company, which, with its

affiliated companies, operated all of the electric light and street railway properties and most of the gas properties in the Pittsburgh district. After having served for several years as vice president of that company in charge of public relations and the law department he was elected as its president in 1926, which office he has held since.

Mr. Robertson will withdraw from his other business activities and devote his entire time to the Westinghouse company. For the present his official headquarters will be in Pittsburgh.

Since the death of Guy E. Tripp in 1927, the chairmanship of the board has been temporarily held by Paul D. Cravath, general counsel of the company. Mr. Cravath will continue in the capacity of general counsel.

* * *

Indianapolis League Making Progress

Over a hundred electrical men, representing every phase of the industry, were present on January 17, at the first annual meeting and banquet of the Electrical League



PRIZE WINNING WINDOW:—The Southwest Electrical Sales Co., Chicago, with this window won the first prize of one hundred dollars in the better window display contest conducted by the Reflector & Illuminating Company among electrical contractors, jobbers and dealers. P & A Electric Co., Mansfield, Ohio, won the second prize of sixty dollars, and Canfield Supply Co., Kingston, N. Y., third, of forty dollars. The judges were J. W. Collins, secretary, Electrical Contractors Association of Chicago; George J. Cowan, president, Koester School of Window Display, Chicago, and E. H. Leaker, display manager, Henry C. Lytton & Sons, Chicago.



AGAIN HEADS CLEVELAND LEAGUE:—J. E. North was elected president of the Electrical League of Cleveland at a meeting of the League's board of directors in Hotel Statler, January 14, 1929, thereby starting his sixth consecutive term in this capacity. Other officers elected by the board were: C. B. Gray, manager of the Buckeye Division, National Lamp Works, vice-president; Harry Hutchinson, president of Davis, Hunt, Collister Company, treasurer, and G. J. Mueller, league employe, secretary.

of Indianapolis. The reports of the league's progress gave everyone encouragement.

Following are the names of those elected to the board of directors from the contractors' section: J. B. Crump, two year term; G. M. Sanborn and H. M. Stradling, one year terms.

* * *

Billing Out Work from Resale Prices

Editor,
Electrical Contracting:

We are today in receipt of our January copy of ELECTRICAL CONTRACTING, and note with pleasure the Suggested Resale Prices section. It is just what the electrical contractor and dealer needs and will save him many times the cost of his subscription.

We have used your Resale Prices in billing out work today.

Sincerely,
W. S. Maddocks.

Scranton, Pa.

300

different
type motors
SERVICED by

this KIT!



How to make 400% PROFIT

On a basis of net cost plus the service charge for labor, dealers are making over 400% profit with the handy No. 35 Ohio Carbon kit. This kit quickly fills every need for replacement on single phase motors.

Every brush is numbered according to type—each type of brush is in a separate compartment—and a concise, simplified chart immediately tells you the exact type of brush to use in single phase motors, such as Wagner, Century, Westinghouse, G. E. and Peerless Motors.

Other types of single phase brushes not ordinarily contained in this kit can be included on request.

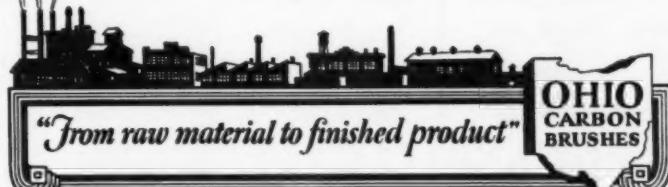
Send for this kit—it gives you an immediate source of supply—no delays—no confusion.

Ohio Carbon Kit No. 35
Price \$25.00

THE OHIO CARBON COMPANY

8217 Almira Avenue
Cleveland, Ohio

West of the Rockies
1066 Howard St., San Francisco, Calif.





SUPERIOR Conduit Fittings

C. S. T. Superior
Conduit Bushings.



Assure Satisfaction

Contractors know the value of well made conduit fittings because they save wiring time and always assure a better finished job.

The Steel Tank Line of Conduit Fittings are all made from heavy clean cut castings, perfectly machined so as to leave no burrs and heavily galvanized.

All fittings come in handy unit packages and are manufactured according to N. E. C. standards.

Write for our catalog.



C. S. T. Superior 90° Angle Connector.

C. S. T. Superior Conduit Locknut, perfectly shaped—clean threads—no burrs.



C. S. T. Superior Connectors No. 601 Squeeze—straight type. A complete line.

SERVICE

Steel Tank Conduit Fittings are shipped on the same day the order is received from warehouse stocks located in principal jobbing centers.

CHICAGO STEEL TANK CO.
Electrical Division
6400 W. 66th St. Chicago



Again Try to License Journeymen

An attempt is again being made at Harrisburg by organized labor, to secure from the legislature an act requiring the licensing of all journeyman wiremen throughout the State of Pennsylvania.

McGraw Award Goes to Courtright

H. H. Courtright, president and manager of the Valley Electric Supply Company of Fresno, Cal., received the McGraw award for cooperation on January 14, at a special luncheon given in San Francisco, in recognition of his contribution to the advancement of cooperation in the industry in the conception and development of the "through-the-dealer" plan for



H. H. Courtright

merchandising electrical appliances. It was this plan which Mr. Courtright explained at the St. Louis Electragist Convention in 1927.

Under his supervision, his company, which is a subsidiary of the San Joaquin Light & Power Corporation, entered into a promotional relationship with some ninety odd retail dealers selling electrical appliances within the territory served by the company.



REFLECTORS for all PURPOSES

Industrial Reflectors

HALF



DEEP BOWL



Show Case Reflectors

ONE LIGHT



TWO LIGHTS



Wiring Channel for Show Windows



**CATALOG
ON APPLICATION**

Overbagh & Ayres Mfg. Co.

413 So. Clinton St., Chicago, Ill.

As a result of four years of this activity the domestic consumption increased from 442 kilowatt-hours in 1923, to 742 kilowatt-hours in 1928, and the average sales of appliances per customer reached the high figure of approximately \$35.00 in 1928. Dealer sales have been increasing at the rate of 20 per cent a year and trade relations have been immeasurably improved.

The award of the McGraw Medal to Mr. Courtright has particular significance at this time because so many communities are searching for a way of increasing sales, and at the same time improving trade relations.

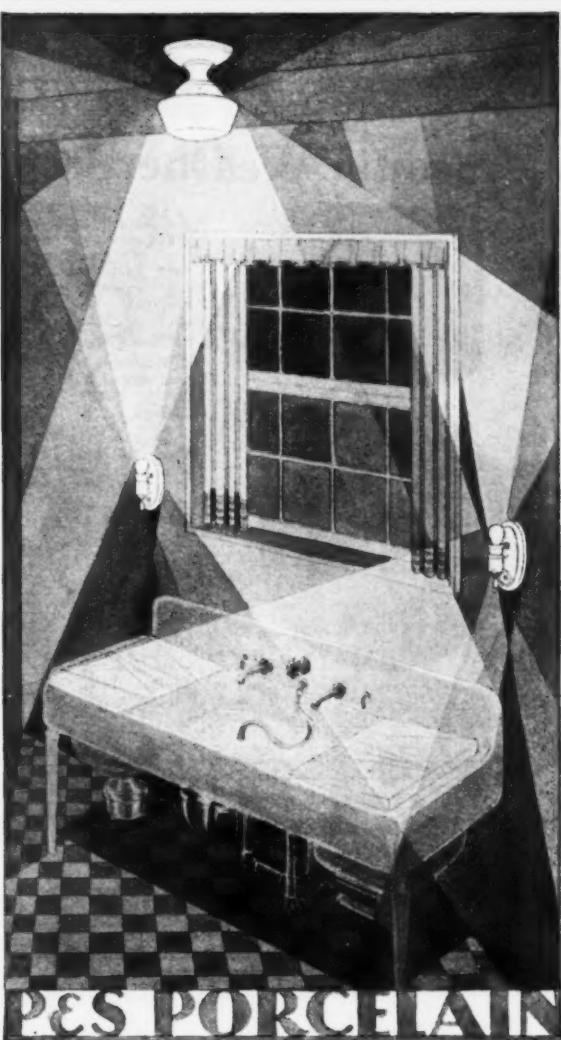
Badrian Joins Bill Goodwin

Bernard Badrian, former supervisor of the wiring promotion department of The Society for Electrical Development, has resigned from this position to become associate in the firm of Goodwin, Morton & Badrian. In his work with the Society, Mr. Badrian had charge of the promotion of the Red Seal Wiring Plan.

Robert G. McPhail of the league and field department of the Society has been appointed temporarily to fill the vacancy.



HELPS FORT WAYNE CONTRACTORS:—A right hand "man" to Fort Wayne, Ind., contractors, is Miss Helen M. Jackson, secretary to the city electrical inspector. Miss Jackson's value to the city is evidenced by the fact that she has been retained through changes of administration. She knows every contractor and his work.



P&S PORCELAIN

NOTHING digs deeper into profits from fixture sales than does the job of wiring. Invariably it takes one or two men's time for a day or more—according to the number of fixtures—in even a modest dwelling.

P&S Alabax porcelain lighting fixtures in plain white and colors are the easiest fixtures to install. In a few minutes they are firmly set in place, on ceiling or wall. Time and labor is saved, with a good profit for you.

P&S Alabax fixtures are now being nationally advertised in leading American magazines. They are being specified for installation in offices and public buildings of all kinds.

SOLD THROUGH JOBBERS

Send for our complete catalogue showing the P&S Alabax line in full colors.

"P&S make labor less"

PASS & SEYMOUR, INC.
Division C Solvay Station Syracuse, N. Y.

P&S
Reg. U. S. Pat. Off.

ALABAX
Reg. U. S. Pat. Off.
LIGHTING FIXTURES



THE ANSONIA ELECTRICAL CO.



Ansonia Weatherproof Bells



The Ansonia Weatherproof Bell contains a new improved method which permits the keeping of armature in magnetic field up to the moment of striking the gong, utilizing fully and efficiently all electrical energy applied, thereby producing maximum blow.

Mounted on a substantial cast iron base with cast iron cover fitted with a rubber gasket.

This bell is produced only in the non-guarded type with gongs ranging from 5-inch to 12-inch in diameter, and can be supplied in both battery and transformer types.

No. 622 Battery Type

No. 624 Transformer Type

Write for this 64-page catalog E which shows a complete line of Annunciators, Bells, Push Buttons and other electrical house goods.



THE ANSONIA ELECTRICAL CO.

ANSONIA, CONN.

ANNUNCIATORS — BELLS
BUZZERS — PUSH BUTTONS

ELECTRICAL HOUSE GOODS

Adds Thousands of Outlets

A summary of the field activities for the year 1928, as conducted by the Electrical League of Colorado, shows that 4,433 outlets were actually added by this activity and almost 2,400 were pending completion. Outlets reported as pending consist of those that have been recommended and accepted as additions to buildings under construction or being planned. There were in addition 177 Red Seal applications secured during the year, and 48 certificates added.

Types of Outlets	Com- pleted	Being Finished	Total Added
Convenience	2,315	1,190	3,505
Switch	596	255	851
Ceiling	398	103	501
Reflector	215	156	371
Bracket	546	393	939
Telephone	186	147	333
Radio	161	88	249
Special	16	62	78
Total 1928	4,433	2,394	6,827
Total 1927	4,104	1,990	6,094
Increase	329	404	733

California Electragists Committees

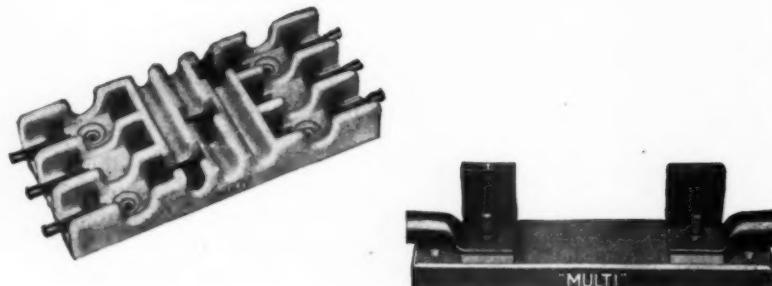
Announcement of the selection of executive committeemen for the California Electragists, both for the Northern and Southern Divisions, were made recently by President Martin.

To the executive committee for the Northern Division, were appointed George Foss, Sacramento; Walter Vance, Pacific Electric Motor Co., Oakland; Roy Butcher, San Jose; Harry Ecklund, San Rafael, and H. H. Courtright, Fresno.

For the Southern Division the executive committee consists of Frank McGinley, Harbor Electric Co., Wilmington, chairman of the Southern Division; H. H. Walker, Los Angeles; Roy Foulkes, Los Angeles; C. A. Rowley, Pasadena, and J. J. Farley, Fullerton.

An advisory board to the president consisting of Clyde Chamblain, C. D. Kenney and Victor Lemoge, all of San Francisco, was appointed by President Martin. This board is to advise the president on policy matters in emergencies rather than putting members

MULTI



Porcelain and Slate Cutouts

Well made. Best materials. Wide selection. Individually packed. Send for catalog sheet.

MULTI ELECTRICAL MFG. CO.

1840 W. 14th St.,

CHICAGO, ILL.

of the executive committee to the expense of a trip to San Francisco for a special meeting.

The Northern Division has set its annual meeting and boat ride to Sacramento for February 15 and 16. The Southern Division meeting is to be held some time early in March.

* * *

Attitude Towards Contractors Changed

Recognition of the important position of the electrical contractor in the industry was the outstanding feature of the Mid-Winter Conference of Electrical Leagues held in Cleveland on January 7, 8 and 9, in the rooms of the Electrical League of Cleveland. The spirit of criticism of the contractor, which has been so prominent in industry meetings to date, noticeably gave way to a spirit of understanding of the contractor and a desire to help him with his problems.

The first session was devoted to a discussion of adequate wiring in both old and new houses, which was followed in the afternoon by



R. Bourke Corcoran, Chairman League Council

a discussion of the following topics: "What Are We Doing to Help the Contractor Dealer;" "How We Enlist the Support of the Local Architects;" "What Are We Doing to Assist Electrical Contractors Who Specialize in Electrical Construction Work in Larger Industrial and Commercial Buildings;" "How We Put Over the Idea of Outdoor Decorative Lighting." In discussing these topics, it was apparent that the conferees recognized that unless

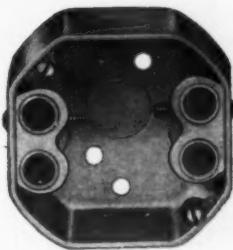
NEW CODE "BOXES"

BY

STEEL CITY"



Catalog
No. 36151-X



Catalog
No. 54151-X



Catalog
No. 24151-XSB

New 3 1/4" Round "STEEL CITY" Outlet Boxes conforming to the new code with latest improved clamp having four bushed holes for bringing Cable in side or bottom knockouts. Equipped with extra heavy screws that will not strip, which insures cable being clamped securely.

This box is furnished complete with half-inch knockout, fixture stud and nail holes in bottom. The clamp is also designed so that any type Fixture Stud or Hickey can be used, still allowing maximum wiring space. Can be furnished complete with clamps only, with clamps and 3/8" Fixture Stud or with clamps, stud and bar hanger.

Can be used with Flexible Metallic Cable, Non-metallic sheathed cable or Loom.

FINISH—Black Enamelled, Galvanized or Sherardized are Standard. Specify finish, otherwise Enamelled will be furnished.

*A complete line of wiring fittings.
Ask your jobber for catalog or write us.*

STEEL CITY ELECTRIC CO.

1207 Columbus Ave.

Pittsburgh, Pa.

In addition to the discussions of the amendment, several contractors analyzed jobs and otherwise spoke in favor of more effort toward adequate profits.

On behalf of the Electric League W. L. Wadsworth, Northern States Power Co., offered the services of the organization and its officers and committees, to further any definite movement on the part of the contractors to strengthen their organization and put in effect a positive campaign for better business. The offer was accepted and a committee of five appointed to confer with the league's executive committee.

The League has since appointed five members to meet with a like number of electrical contractors to study local trade conditions in an effort to improve them.

The lively discussions developed quite a hunger and thirst among the boys, and when sandwiches, coffee and doughnuts were announced, time was taken out for social mixing. The talks were resumed afterward and midnight found a half-dozen still at it after the meeting was adjourned.

**To Discuss Code
Procedure**

The annual meeting of the Electrical Committee of the N. F. P. A. will be held in New York City on February 18, 19 and 20. This meeting will not only take up the regular article committee reports on proposed revisions but will discuss in detail the situation with respect to the reorganization of procedure and personnel. Some of the branches of the electrical industry have signified their intention of demanding a greatly increased representation upon the Electrical Committee without increasing the size of the committee itself.

The meeting will also give consideration to form and arrangement of the text to the Code, to interpretations Nos. 10 to 20 inclusive, to the report of the Grounding Conference and to a report from the Underwriters' Laboratories concerning the new form of standardized 0-15 amp. branch circuit fuses.

For Convenience and Economy

the New
Levolier
Heavy Duty Fixture Switch



The switch is away from the heat of the lamp. Equally adaptable for conduit box, canopy, ceiling pan or office fixture installation.

THREE'S a wide field for the New Levolier Fixture Switch in countless industrial plants and commercial institutions. And the password is, "Convenience and Economy." The idea of individual control of lighting equipment has taken hold. It offers the convenience of turning off any unit at any time and saves on current.

The Levolier Fixture Switch is easily installed. No extra wiring, conduit or switch boxes are necessary. One leg of the circuit is cut and the two ends attached to the terminals of the switch. Cuts down materially on installation costs on either new or old work.

Even under the hard wear and tear of switching a cold 500-watt gas-filled Mazda lamp there is no possibility of breakdown.

A sample and full information will be sent upon request.



Positively Cannot Work Loose



You need E. Z. bolt anchors to hold motors, transformers and electrical machinery to concrete foundations.

Thousands are used to fasten electric signs to buildings of stone or concrete; in fact, wherever a load is to be hung from concrete or supported on stone, E. Z. bolt anchors will give a secure anchorage.

To acquaint you with the ease of installation and the efficiency of the E. Z. bolt anchor, we are making a SPECIAL OFFER. We want to send you four samples of E. Z. bolt anchors, so that you can test for yourself the claims we make.

Fill in the attached coupon and we shall mail you, without any obligation on your part, four samples E. Z. bolt anchors.

Check desired size:
1/4" 3/8" 1/2" 5/8" 3/4" 7/8" 1"

Name _____

Address _____

City _____

State _____

Kempton Mfg. Corp.
148 West 23rd Street
New York City

Changes Proposed for 1928 Code

A number of article committees have made advance publication of proposed changes in the 1928 Code.

Article 5 suggests that a 1-in. service conduit will be sufficient for enclosing three No. 6 conductors instead of 1 1/4 in. as now required. Rules for cast-in-place raceways have been written for 509. A new section, 515, deals with thermo insulation for hollow walls, as does 516 for bare bus bars and risers.

Certain changes are suggested for Article 6 in wire designations and a number of changes in the grounding rules, Article 9, are for the purpose of clarifying the situation.

The committee proposes in 905-e the grounding of fixed equipment devices and appliances to the identified grounded wire when using other than metal protected systems.

Of the committee of thirteen, seven voted for this and six against it. A minority report has been submitted stating that this is an unsafe practice and concluding as follows: "As a matter of attention and information, these proposals are also addressed to the early recognition of the bare, neutral and concentric wiring systems which, in our opinion, embody additional unsafe features."

Other changes for the purpose of clarity have to deal with Article 32 on hazardous locations.

* * *

New Power Consumption Record

A record-breaking figure for the average daily use of electricity is indicated by the total output of 7,752,648,000 kilowatt hours in November by all agencies which contribute to the country's electrical supply, as announced by the United States Geological Survey, the National Electric Light Association reports. This compares with 7,925,824,000 in October (which had one more day) and with 6,874,471,000 in November a year ago. In addition to this November, 1928, total a further amount of 137,264,000 kilowatt hours was imported from Canada.

"ADAPTⁱ"

The Complete Line of Conduit Fittings

NOW that we have added a full line of

ADAPTⁱLETS

(Standard Solid Fittings)



to our full line of

ADAPTⁱBOXES

(Flexible Rigid Fittings)



you can get ALL your Conduit Fittings from the same source—
save time—and get better quantity discounts.

Write for Catalog 107-A

The ADAPTⁱ Co.
2996 E. 72nd St., Cleveland, O.

NEW YORK CITY
A. Stone, 112 East 23rd St.

PHILADELPHIA

Craven Electric Sales Co.,
30 Bank Street

SOUTH BOSTON

The Hastings Electric Sales Co.,
42-50 Binford Street



DISMANTLING THE CHRISTMAS TREE:— Standing on the fire truck, in front are T. L. (Ted) Losby, left secretary of the Minneapolis Electric League, and Oscar Frykman, chief electrical inspector for the department of buildings. They are watching the fire laddies dismantle the giant Christmas tree put up for the Holidays.

Must Make Place Safe for All Trades

A general contractor may be liable in damages for injuries sustained by employees hired by an electrical subcontractor.

For instance, in De Lee vs. J. Pardy Co., 162 N. E. 599, a general contractor made a contract for the construction of a building, and sublet the electrical work.

Through the middle of the first floor extended an aisle which formed the only passageway from the front to the rear of the building. Above this passage the plasterer had erected a scaffold for the use of his own employees. An employee of the electrical contractor was walking through this passage beneath the scaffold, when it fell upon him. He sued the general contractor for damages, contending that the general contractor's superintendent was negligent in permitting a greater number of men to mount the scaffold than it would safely support.

Testimony was introduced showing that the duties of the general contractor's superintendent were to see that the work was carried along smoothly to final completion. Also, he went from place to place in the building and checked up the various operations of the subcontractors.

In view of this testimony the Court held the general contractor liable for the injuries.

Leo. T. Parker.

You'll never hit a snag when fishing "GALVADUCT" or "LORICATED"

conduits. Because every length of raw pipe is thoroughly cleaned, sandblasted and inspected several times before the protective coatings are applied. The special enamel on the inside surface makes these raceways have a glass-like finish. Wires just won't stick and you will save time and trouble by using these conduits.



GARLAND
Manufacturing Co.

Pittsburgh,

Pennsylvania.



Fretz-Moon

Fretz-Moon Tube Co. Butler, Pa.

The name FRETZ-MOON signifies the highest standard of quality and service in CONDUIT.

RIGID CONDUIT

Beating Competition with Brains

Competition is tough in the electrical contracting business these days; and every day it gets worse. Successful contractors have found they can beat fly-by-night competition best by using their brains, and by educating their responsible employees. You can help your head men to keep abreast of the times and save you money by sending each his own copy of ELECTRICAL CONTRACTING.

Better Wiring in Kansas City

Rapidly increasing use of electricity has prompted the electrical department of Kansas City, according to L. J. McCormick, chief electrical inspector, to set up additional measures of protection to the public. The regulations which went into effect on January 1, are printed below and, it will be noticed, are aimed distinctly at wiring adequacy to minimize the use of cord which has proven to be a major electrical fire hazard.

1. In Residences, Apartments or Hotels:
 - (a) Five circuits or over must have a 220-volt 3-wire entrance.
 - (b) Bell ringing transformers must be installed either in or on cabinets or outlet boxes and be protected by not more than a 5-ampere fuse.
 - (c) All lighting fixtures or sockets in bathrooms, shower rooms, lavatories, laundries or over sinks shall be controlled by a wall switch or switches, equipped with non-metallic switch plates.
 - (d) The minimum number of convenience outlets to be installed shall be as follows: Two in living rooms (3 where floor area exceeds 200 square feet); and at least 1 in dining rooms, breakfast rooms or nooks, kitchens, dressing rooms, servants' rooms, bathrooms and all other rooms over 80 square feet in floor area. (This department suggests the use of non-metallic plates in bathrooms.)
 - (e) The convenience outlets in kitchens and breakfast rooms shall be placed on a separate circuit.
2. The installation of knob and tube wiring must be installed on what is known as the Loop System, which means that all splices must be made in outlet boxes either at ceiling outlet or switch outlet.
3. This department suggests that radio sets, AC or those using "A" or "B" eliminators, be installed on separate circuits (this is not mandatory). All outdoor radio aerials must be protected by lightning arrestors.

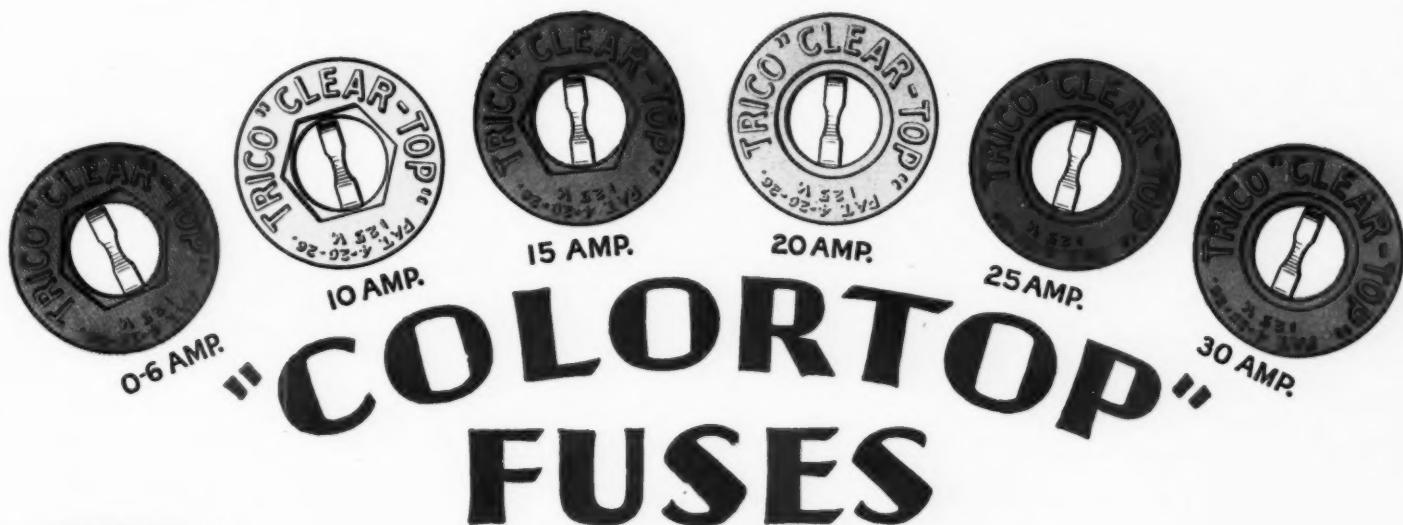
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Resigns City Post to Become Contractor

Paul Thiele, for the last three years city electrical inspector of Fort Wayne, Ind., has resigned to become general superintendent of Dix-Kelly Electric Shop, Inc., of that city. Mr. Thiele was instrumental in organizing the local contractor's association in 1926.

They're Out!

TRICO!



0-6 AMP.

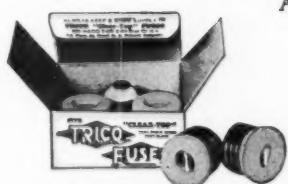
NOW The capacity of a fuse is known by its color

Simplifies Inspection, Makes Easy Selection and is Instructive to Users.



30 AMP.

A colored band around the edge of the 5 unit cartons indicate the capacity of the fuse the box contains. A help to storekeepers, stock-clerks and others to select and know the sizes on the shelf and bins quickly



10 AMP.

Let this serve as your guide



25 AMP.

They're packed in 5 unit cartons. to facilitate merchandising - have the clear mica window that shows when they blow - and possess the qualities of large center contact, full threaded heavy shell and all porcelain non-shock top. **No additional charge will be made for the colored top.**



15 AMP.

Free Samples on Request

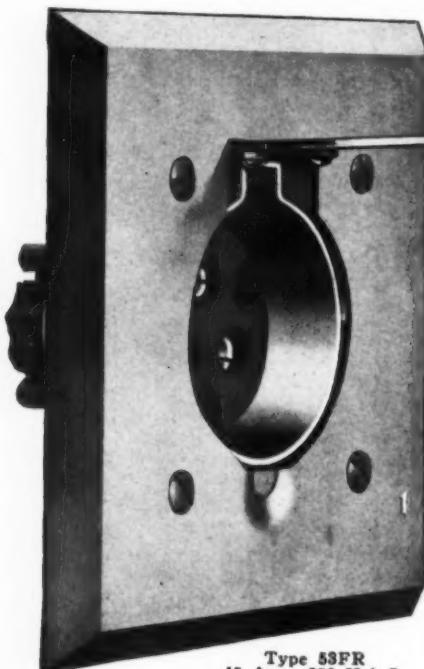


20 AMP.

Approved by Underwriters' Laboratories, Inc., Hydro-Electric Power Commission of Ontario, and the following: Modern Priscilla, Good Housekeeping Institute and Herald Tribune Institute.

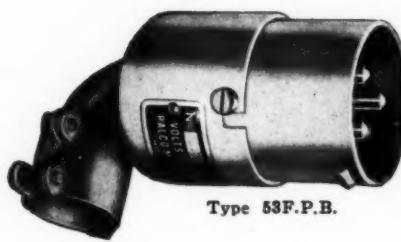
Trico Fuse Mfg. Co., Milwaukee, Wis.

Your jobber can obtain TRICO "COLORTOP" fuses for you if he does not have them in stock.
WARNING! The Colored Top for fuse plugs is fully protected.



For those Heavy Duty Installations

such as Hotels,
Hospitals, Clubs,
Lodges, Halls,
Schools, Colleges
or Residences,
where dependable
heavy duty
outlets are re-
quired, use



R A L C O flush receptacles

Severe service has no terrors for this equipment.
Here's why:



- 1 Plugs have heavy shell of drawn steel, treated to prevent corrosion.
- 2 Contacts fully protected, and all strain is taken off the contacts, insulators and binding screws.
- 3 Plug is held in receptacle by heavy phosphorbronze spring, which also grounds plug case to

conduit system complying with 1929 code.

- 4 Ralco receptacles can be mounted on standard outlet box cover.
- 5 Brush Brass Plates are furnished as standard—other finishes at slight advance in price.
- 6 Ralco prices are in line with that which your customer will gladly pay.

Type 53FR for 3 conductor service, for Electric Ranges, Warming Tables, etc., and Type 52FR for two conductor service, will answer all requirements of service, economy and ease of installation.



R A L C O
Manufacturing Co.
125 No. Albany Ave., Chicago

Send for
Bulletin 106
Containing full
details of Ralco
flush receptacles
and plugs.

Mr. Thiele caught the attention of the county some two years ago for his attempts to exclude non-approved materials from Fort Wayne. Pressure from commercial interests prevented the effort from bearing fruit.

Arthur Welklin of the Welklin Electric Shop has been appointed to finish the unexpired term.

* * *

League Changes Name

In recognition of the fast growing radio industry and desiring to further cement the close relations between it and the electrical industry, the Kansas City (Mo.) Electric Club has changed its name to the Electric and Radio Association of Kansas City.

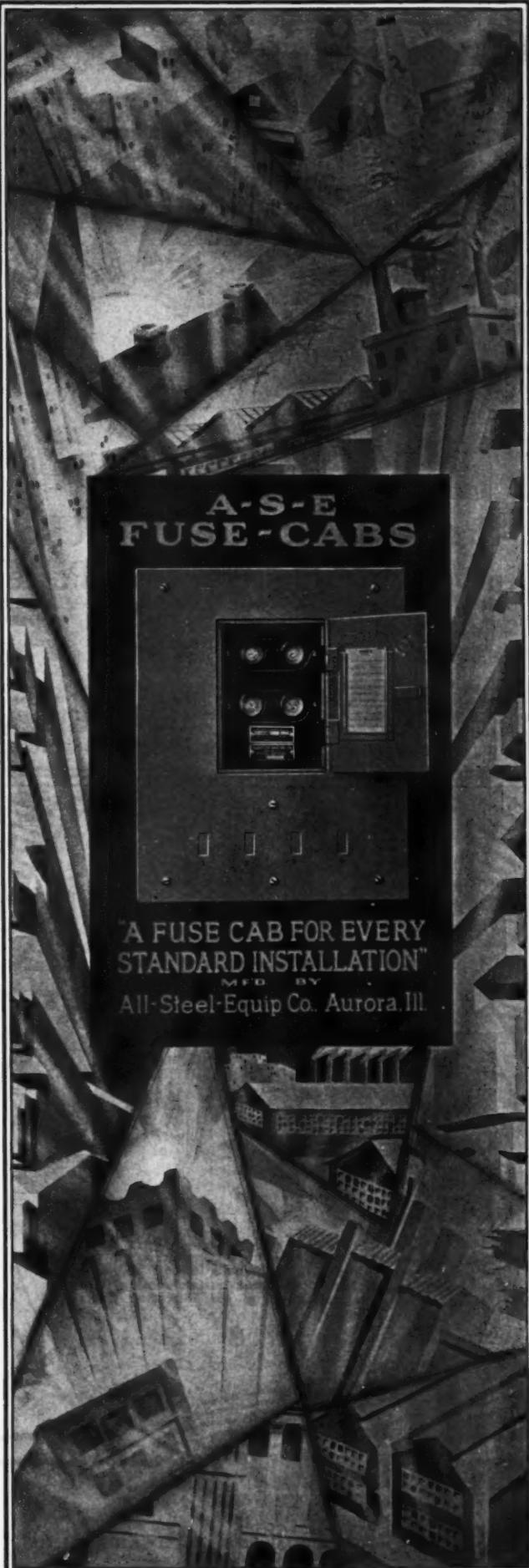
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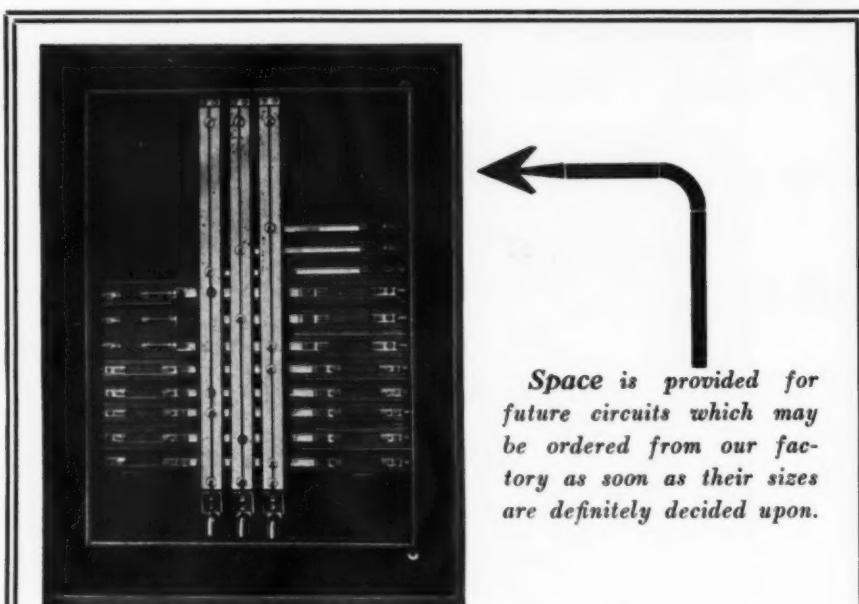
Sweeney in New Quarters

C. O. Sweeney, electrical contractor of Fort Wayne, Ind., has taken over the quarters formerly occupied by Eugene Pauley at 1828 Calhoun Street, Fort Wayne. Mr. Pauley died last year following several years of prominence in the contracting field.



MANAGER NEW ERIE LEAGUE:—George B. Noll, formerly with Hart & Hegeman in Pittsburgh, has been appointed manager of the new Electric League of Erie, Pa., which was formed on January 8, with headquarters at 623 Erie Trust Building. Plans are being laid for a continuous advertising and selling campaign on better wiring and merchandising.





Space is provided for future circuits which may be ordered from our factory as soon as their sizes are definitely decided upon.

Progressive Contractors Use Convertible Distribution Panels

These panels permit an electrical contractor to alter the ampere capacity of the individual circuits from 10 amperes to 200 amperes according to load requirements. The only tool required is a screw driver. They cost no more than the now old fashioned slate panels.

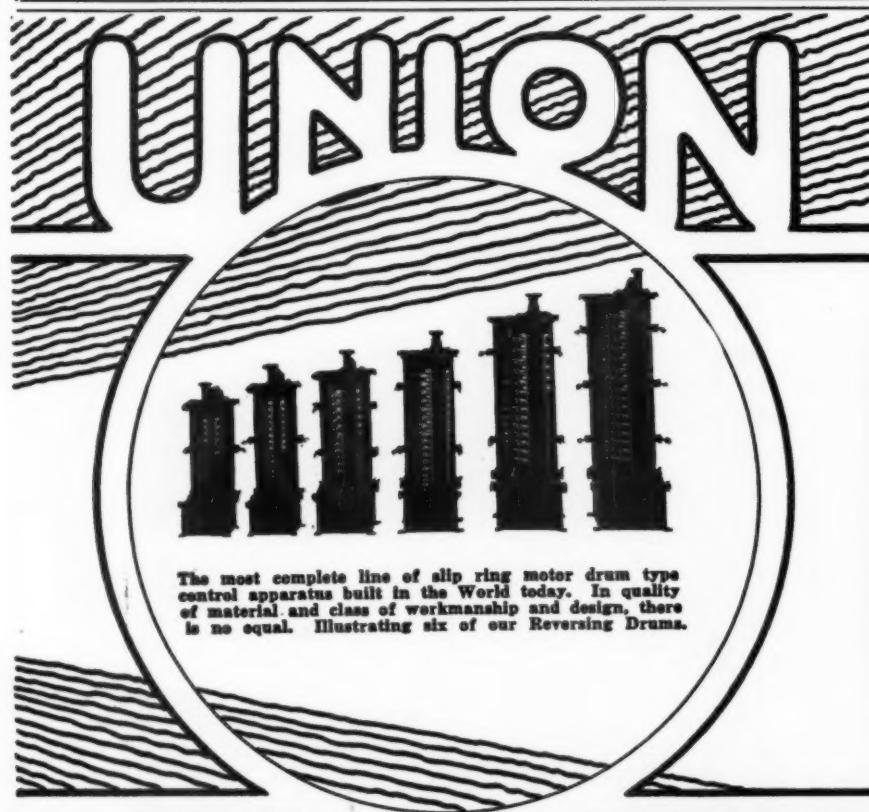
Send for literature and prices.

THE LEXINGTON ELECTRIC PRODUCTS CO., Inc.

207 E. 48th Street
New York, N. Y.

12 Chapel Street
Newark, N. J.

PANEL BOARDS—STEEL CABINETS—SWITCHBOARDS—SWITCHES



UNION ELECTRIC MANUFACTURING CO.

MILWAUKEE, WISCONSIN

Associated Manufacturer with, and Eastern Distributor for

DIAMOND 

ELECTRICAL MFG. CO., LOS ANGELES, CAL.

New Detroit Rulings

Additional special rulings have been adopted in Detroit, the most important of which are the provision for more copper in service and those for grounding.

In Detroit different classes of occupancies have what is known as wattage schedules which assign so many watts for the different kinds of light outlets and convenience outlets. Under the new rules, all single family houses with a wattage schedule of less than 5,000 are to be wired with a 3-wire service not smaller than No. 8. Only small houses with a minimum amount of wiring will, as a rule, come under this provision.

Where the wattage of single family houses is 5,000 watts and over the service is to have at least a 60-amp. service switch and three No. 4 wires.

Each apartment of a duplex or income bungalow is to be treated as a single family house insofar as meter loops and meter service switches are concerned. Where one or both apartments are of 5,000 watts or more, a minimum of three No. 1 wires shall be used and where each apartment is less than 5,000 watts, the minimum service is to be three No. 4's. This rule goes into effect on March first.

All store sections of buildings are to have a service capacity for



WIRES CHURCH WITH ELECTRIC CHIMES:—In the center is E. B. Kelly, head of E. B. Kelly & Co., Minneapolis, Minn., conferring with his men at the Lutheran Church of the Redeemer, which they are wiring. This is quite an ambitious job for an ordinary sized church, having a kitchen and stage in the basement, with many extra rooms and studies. Even the chimes in the tower will be electrically operated.

150 per cent of the scheduled wattage load.

The rules governing grounding are as follows:

"All single phase two and three wire services shall be grounded where the potential to ground does not exceed 150 volts, as follows:

"The service (live) ground conductor shall be of copper, enclosed in rigid conduit throughout its entire length, said conduit terminating in the main switch box and at the ground end in an approved fitting, clamped to the water pipe.

"The service entrance conduit, the ground protective conduit and the largest load conduit, terminating in the main switch box or meter device box, shall each be equipped with threaded type connectors and connected to each other and to the service ground conductor by a suitable copper jumper."

* * *

Nashville Contractors Organize

The Association of Electrical Contractors of Nashville, Tennessee, was organized on January 11, with E. J. Deaderick of the Deaderick & Davis Electrical Company as president; G. W. Fulcher, vice president, and Melvine Vaughan, treasurer.

The association selected as a motto, "Better Wiring for a Safer City."

* * *

Nineteen Million Wired Homes

Figures prepared by the National Electric Light Association show that on the first of January the number of wired homes in the United States probably passed the 19,000,000 mark. This is an increase during the year of well over a million homes.

The report shows that on January 1, 1928 there were 17,860,000 wired homes in the United States and that on September 30 the number had increased to 18,702,000. Assuming that the last quarter showed the same increase as the previous quarter, the industry should start the new year with more than 19,000,000 homes wired.

The report also shows that during the first nine months of 1928 there was a large increase in the number of farms receiving electrical service for the first time.

It is interesting to note from the report that California reports more homes wired than there are homes in the state. This is probably due

EXPECT GREAT THINGS

in the improved sectional type



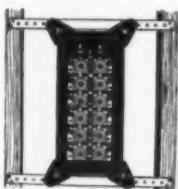
They will measure up to your expectations

Inbuilt quality and superior design have always characterized Wurdack Panel Boards. But these improved sectional panels, with their many advanced features, set a new standard in panelboard construction. Consider these outstanding features:

- ¶ All parts are removable from the front. Ready access is provided to switch mechanism and fuse connections. It is especially easy to replace copper shell or contactor screw when these become badly burned from short circuit or heavy overload.
- ¶ All new tumbler switches are rated 30 ampere, 250 volts and are heavy duty type, with mechanism and contact parts capable of most severe service. Single pole tumbler switches are equipped with Bakelite arc snuffers lengthening life and increasing breaking capacity. Blades are self aligning with contacts. The entire steel frame and switch mechanism is thoroughly rust-proofed.
- ¶ Entire back of sectional panel is covered with a continuous steel plate, which guards against injury during installation, and always keeps mechanism of switches free from dust and dirt.
- ¶ Panel is secured in cabinet by means of four special mounting studs, which permit adjustment both in-and-out and laterally. The arrangement is such that adjustment can be made after panel is installed without the use of any special tools.
- ¶ All-steel fronts, of heavy gauge sheet, are smooth and flat and carefully finished in genuine black lacquer. Easy to keep clean and neat in appearance.

Assure satisfaction to both your client and yourself by installing Wurdack Panel Boards on your next job. Investigate their merits . . . Write for latest catalog.

WURDACK
ELECTRIC MFG. CO.
4444 CLAYTON AVE., ST. LOUIS, MO.



Catalogue No. 12 F
Flush Type Cabinet,
roughed in position,
mounted on Steel Bar
Hanger supports.

BRANCH CIRCUIT CABINETS

Flush Mounted Type Dead Front Construction

Wadsworth Flush Mounted Branch Circuit Cabinets are easy to install because of the method of Bar Hanger Supports, ample wiring space, and clean cut knockouts. These Cabinets are furnished with two bar hanger supports, at no extra cost. These supports are designed to span studding space up to 16 inches and have tapped holes to take screws through corner ears on cabinet. On rewiring jobs these corner ears are used for installing. These cabinets are for 2 or 3 wire service.

SURFACE MOUNTED Dead Front Construction



—2 With BOSSED END For 2 or 3 Wire Service

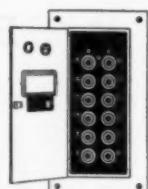
Can be attached to any Wadsworth 30 Ampere Meter Service Switch by means of Bossed End or by an Adapter End. Cabinet can also be attached to 60 Ampere Switches by the use of an adapter plate for 60 ampere switches which is enclosed in these switches.

Send for Bulletin No. 41 Describing Them.

The WADSWORTH ELECTRIC MFG. CO. INC.

Covington, Kentucky

OUR MOTTO: Quality Goods—Prompt Service



Catalogue No. 12 F
Flush Type Cabinet,
with Aluminized
Trim in Place.

to their meter classification. Next to California comes New Hampshire with 97 per cent wired, New Jersey with 95 per cent wired and Rhode Island and the District of Columbia with 93 per cent each.

* * *

Must Preserve the Code

By A. PENN DENTON

The electrical industry has contributed a great influence in American industrial progress in aiding in establishing mass production and raising the scale of labor in this country to new world standards unthought of or even hoped for in foreign countries. Our industry has made possible a realization of leisure to all our people. Through our comfort-giving and labor-saving devices we have helped to furnish the American home. Thus we are contributing in a broad and constructive way to the prosperity of our people, undreamed of a generation ago.

All progress we have made is the direct result of supplying safe electrical service by providing an engineering standard for electric wiring in our National Electrical Code which has kept pace at all times with the industry's commercial progress.

In this, the day of America's leadership in world progress and affairs, it is proposed by certain interests in one group of our industry that radical changes be made in our wiring situations. They ask that European wiring methods, of proven merit, be substituted for ours because of a fanciful economy in what would be an entirely new method of wiring in this country.

Their proposals to adopt wiring methods of foreign countries, treats with wiring situations from a strictly commercial standpoint, and would push aside into the discard our American wiring standards developed along reasonable engineering lines, in providing adequate safeguards to life and property.

Our industry cannot recognize any lowering of safe standards for wiring as we enter the greatest era of expansion in electrical service the world has known. The electrical industry must develop the potential electrical markets of

No More Smoked Ceilings

IDEAL Universal WIRE CONNECTORS

eliminate the blow torch!

One size fits all roughing or fixture joints

Double current carrying capacity

Write today for free sample

Ideal Commutator Dresser Co.
1041 Park Ave.,
Sycamore, Illinois.

229

New
Low
Price

Please send me sample, new prices and complete information regarding Ideal Universal Wire Connectors

Name
Address
City State

NOTICE

Every building is supplied at the service switch with single phase, 60 cycle alternating current at 115/230 volts. This energy is delivered to the lighting and convenience outlets at 115 volts. The lighting rate is 5.7¢ per kilowatt hour. Where cooking or heating equipment of 2 KW capacity or over is used, special rates are available. We have been very careful to install the proper size fuses. They are the watchdogs that protect your building. The main fuses are of 30 ampere capacity and the branch fuses are of 15 ampere capacity. Fuses of greater capacity than this should never be used. All fuses are accessible and it is not necessary to knock the seal on the service switch to install the main fuses. Never replace a fuse with a penny or other metal bridge, for that is inviting trouble. We are only as far away as the nearest telephone. Whenever you need electrical service call 22202.

WM. H AXELSON
Electrical Contractor

524 Hudson Drive Phone 22202
YOUNGSTOWN, OHIO
— OVER —

GOES ON EVERY METER SWITCH:—W. H. Axelson, Youngstown, Ohio, places a red tag on every meter switch he wires telling kind of service, voltage, rates, fuse sizes and fuse caution, and his telephone number. On the reverse side is a list of all the common electrical appliances and the cost per hour to operate them.

America, not through a lowered standard in safe wiring practice, but by providing a real sales program, commensurate with that of the plumbing and allied building industries, by going to the American home, in city and on the farm, as well as to the factory, with quality electrical products and safe wiring installations.

A united effort today and in the years ahead, by all groups of our industry in support of our American electrical installation standards given us in the National Electrical Code and backed by 36 years of orderly development, will guarantee to the public adequate and safe electrical service for the future.

Such immediate industry action will furthermore result in simplification and standardization in all of our wiring methods thus assuring the public the maximum benefits at



five good Reasons

—why "TOLEDO" pipe tools are preferred by electrical contractors. Faster, easier operating, smoother cutting, simpler in design and stronger in construction make the "TOLEDOS" the dominating value in pipe tools.

They are the ideal tools for cutting and threading electrical conduit. Experienced contractors everywhere specify them.

When results are desired specify a genuine



The Toledo Pipe Threading Machine Co., Toledo, O.

If It's a Chain Fixture Use a *Levolier* Link Switch



The smallest, neatest, 6-ampere pull switch, adaptable to any chain fixture. Away from the heat of the lamp, it will last indefinitely and stand up under the constant switching of even a cold 500-watt gas-filled Mazda lamp.

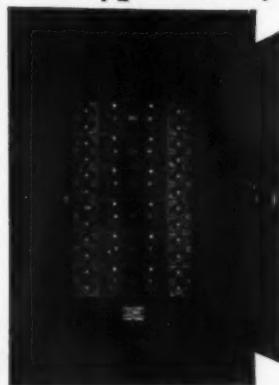
For old or new work, the switch fits in place of one of the chain links without altering the length of the chain or necessitating rewiring of fixture or splicing of lead wires. In brushed brass or Jap bronze. Let us send you a sample for a trial on the next refixturing job.



McGILL
MANUFACTURING CO.
Electrical Specialists of Quality
ESTABLISHED 1904
VALPARAISO - INDIANA



**New Style Penn Security
Moulded Type Safety Panels**



**WRITE FOR CATALOG
DISTRICT REPRESENTATIVES**

Mr. Harry W. Wright,
Room 212,
90 West Street,
New York City

J. E. Perkins Company,
11 E. Center Street,
Baltimore, Md.

Mr. R. R. Mathias,
2623 Melrose Ave.,
Cincinnati, Ohio

Mr. Franklin S. Lewis,
618 Real Estate Trust Bldg.,
Philadelphia, Pa.

W. C. Fletcher Company,
502 Illinois Bldg.,
Indianapolis, Indiana

Mr. James L. Thompson,
1528 S. Union Ave.,
Alliance, Ohio

Main Office and Works:

PENN ELECTRICAL COMPANY
IRWIN, PA.

minimum cost. These benefits must guarantee safety to life and property. Should our industry at any time overlook these most important factors, we shall lose our privilege of preparing an industry wiring code. This will then be taken over and prepared by others outside of our industry so as to always be in the public interest.

* * *

**Taking the Slack Out of
the Work Sheet**

(Continued from page 16)

on work to be had. We are not liable to overlook any profitable jobs.

2. It brings us work and profit when we need it the most.

3. It helps the morale of the men because they know we are on the job hunting work so they won't be idle.

While some of the jobs are comparatively small, this is by no means the rule. On the contrary, we have secured and completed some very large and important wiring installations as a result of this hustling around for work before the slack time arrives.

Although we keep good track of this sort of wiring, we use no definite rule in seeking it. We simply know where the work is, go after it in plenty of time and get enough to avoid any gap in our activities.

KRUSE

PATENTED

Switch Box Supporting Strips with or without Lath Holders

16½-18½-20½-22½-24½-26½ In. Lengths

Used by Contractors everywhere. A leader for ten years.
Stocked by all leading jobbers. Millions of sets used yearly.

WE ALSO MAKE

Kruse Bar and Old Work Hangers

Non-Metallic Sheathed Cable Straps

Peerless Type A Old Work Hangers

Fitz-M-All Outlet Box Hangers

"Ready" Service Fittings

MID-WEST METAL PRODUCTS CO. Muncie, Ind.
Send us your latest bulletin with prices

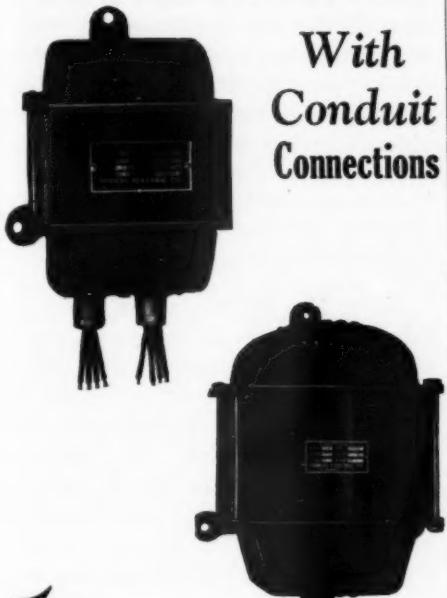
Name _____

Address _____



DOING LOTS OF APARTMENT HOUSE WIRING:—Introducing M. L. Rosenthal, head of the Williams and Rose Electric Co., Denver, Colo., who has been enjoying an epidemic of apartment house wiring. Among his recent jobs are the Casa Grande, the Ethel and the Elderman apartments, all of them right up to the minute in construction and equipment.

NEW CODE TRANSFORMERS



With
Conduit
Connections

SORGEL Air Cooled TRANSFORMERS

meet all requirements of
the New National Code.

Can be installed most any
convenient place inside of
buildings without vault or
enclosure of any kind.

Economical to Install.
No Oil to Bother With.

Ideal for obtaining 110
volts for lighting, portable
tools and appliances from
550-440 or 220 volt, A.C.
circuits or wherever a
change in voltage is de-
sired.

Made in Sizes $\frac{1}{4}$ to 50
KVA Single Phase, Two
and Three Phase.

Transformers designed for
special applications.

Send for descriptive litera-
ture.

Sorgel Electric Co.
Clybourn & W. Water St.
Milwaukee, Wis.

Funds for Leagues from Manufacturers

An orderly procedure for collecting and disbursing funds contributed by national manufacturers of electrical apparatus, material and supplies for the support of local electrical leagues has been approved by the board of governors of the National Electrical Manufacturers' Association.

Under this plan, national manufacturers will be asked to subscribe to a common fund for the support of local electrical leagues, said fund to be collected by a board of trustees nominated by the respective electrical manufacturers trade associations and approved by the board of governors of the Society for Electrical Development. The amount contributed is to be based, insofar as possible, on a percentage of sales, to insure an equitable distribution of the manufacturers' proportion to the operating costs of the leagues. The funds thus collected will be allocated by the board of trustees, augmented by representatives of the S. E. D. and the League Council, to such leagues having individual membership dues of nominal amount for representatives of contributing national manufacturers, in proportion to the size and activity of the respective leagues.

* * *

Direct Consumer Sales Evil (Continued from page 28)

to furnish the few commercial lighting fixtures required for store lighting, etc. I cannot see the glory in merely being allowed to bid on just furnishing labor and wiring materials for doing this work.

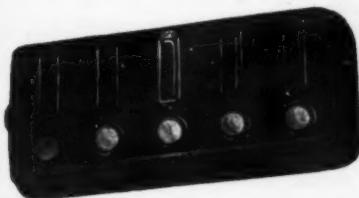
Just today I was asked to install a "Code Call" signal system, the bells, etc., of which had already been sold them at exactly wholesale trade prices, as I was shown the bill for them. To make matters worse, the salesman in order to make the sale suggests to the customer that it will cost only about so much to have some electrician install it. In this particular case his estimate was about \$20 for installing a 110 volt bell ringing system in a large loft floor, concrete ceiling, making the use of about 250 ft. of conduit necessary. The



ALTMAN Desk and Table Pushes are known everywhere for their long lasting performance requiring little or no attention once they are installed. They are carefully assembled so as to give unquestionable service—the kind that all executives expect and are accustomed to.

They are available in round or rectangular styles—the rectangular style with or without name plates as desired. Standard finishes are golden oak and mahogany. Special finishes extra.

For Sale by all Jobbers.



Also
Manufacturers of

CABLE HANGERS

Minerallac Cable and Conduit Hangers carry the approval of the Underwriters' Laboratories. Made of spring steel they are strong, easy and quick to put in place.

MINERALLAC

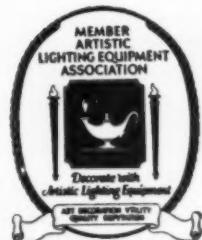
Minerallac Insulating Compound for use on high tension lines in Cable Joints, Potheads, Terminal Bells and Transformers, or for low tension lines to protect telephone conductors, instrument parts and small coils.

MINERALLAC
ELECTRIC COMPANY
25 No. Peoria St., Chicago, Ill.

MURLIN

A BEAUTIFUL new creation in Bronze . . . No. 1753 . . . embodying the dignity and simplicity of genuine Colonial architecture.

Many new numbers have been placed in the Murlin line of exterior lighting. One-quarter size prints will be furnished on request.



MURLIN
Mfg. Co.

5420 Paschal Ave.
Philadelphia, Pa.



Save time and labor **U**se MISENER
on wiring jobs **U**products

Misener Rotary Hack Saw

Cuts clean round holes in terminal and junction boxes, slate and marble panels, and automatic starters for entering conduit.

Type B No. 2 Tool embodies 9 pipe sizes $\frac{1}{8}$ " to 4". Complete with $\frac{1}{4}$ " depth of Blades.....\$13.50

Type B No. 4 Tool embodies 6 pipe sizes $\frac{1}{8}$ " to 2". Complete with $\frac{1}{4}$ " depth of Blades.....\$7.00



Misener Safety Conduit Seals

These little discs of heavily waxed fibrous stock keep the exposed conduit airtight and water, dirt and cement proof.

They are slipped into the conduit bushing while the building is under construction and easily destroyed with a screw driver or knife when ready to fish the wire—not necessary to remove the bushing.

SEALS are inexpensive—plugged up conduits are costly.

Size Inches	Std. Pkg. 100	Price per 100
$\frac{1}{8}$	500	.20
$\frac{3}{16}$	250	.25
1	250	.25
$1\frac{1}{4}$	150	.30
$1\frac{3}{4}$	150	.35
2	150	.50
$2\frac{1}{2}$	100	.70
3	100	.90

Tools, Blades and
Seals Patented



Misener & Irving Mfg. Co., Inc.

Syracuse, N. Y., U. S. A.

job looked to me to be at least about \$100 and of course that made the customer pause. I told him to get the salesman to have it put in for his estimate. I even suggested the system be installed on low voltage transformer wiring which would reduce the cost considerable; but upon taking up the matter with the salesman regarding the use of low voltage bells he refused to recommend that it be installed in that manner.

Now, Mr. Editor, what I would ask you to do is to suggest a remedy. Should the contractor absolutely refuse to accept this class of work, or would you suggest some arrangement such as adding about 10 per cent to the wiring estimate to cover some margin that he is entitled to on the cost of the equipment which has been directly purchased?

In the case of motors, which are to be installed by the contractor, it is hardly to be expected in these days that the contractor should be "let in" on the sale, but the consumer expects the contractor who puts in the installation to see that everything works properly. He never for a minute thinks of calling the salesman when anything goes wrong, but expects the contractor to take up his time to rectify the trouble, because he is installing it. I have been in the electrical game for a good many years and find it increasingly difficult to make anything out of it.

I don't know whether you have any remedy to offer or not; but as one of your subscribers I am writing some of my troubles to you which I presume are the same with others in the business. One thing I do know, and that is I am not satisfied to pick up the crumbs that fall from the table; and if my twenty-five years' experience is worth nothing more than being paid for labor I might as well take a job somewhere.

Louis Stern.
Philadelphia, Pa.

(We have no remedy to offer, but perhaps some of our readers have bucked this pernicious activity on the part of manufacturers and others. Let us know if you have been successful and how you did it.—Editor)

Use of Lead Cable for Service

(Continued from page 24)

whether or not this is good practice. If the cable is supported by means of a messenger wire as is the common practice with the telephone cable, there would probably be no objection but there are several inspectors who claim that lead cable sheath will not properly withstand the mechanical injury which would be afforded to it if ordinary pipe straps were used for support.

Our advise, therefore, would be to see to it that when running such a cable on the outside of a building, it be not subject to injury of the lead covering.

* * *

Tom Meade Killed in Accident

Thomas O. Meade, president of Meade Electric Company, Chicago, died on January 25 as the result of an automobile accident. Mr. Meade was one of the prominent Chicago electrical contractors and for the past ten years had been a member of the executive committee of the Electrical Contractors' Association of Chicago.

The principal work of the Meade company was street lighting. It also did all the electrical work for the Chicago West Park System.

Mr. Meade was forty-two years old at the time of his death.

* * *

Chicago Association Officers

The installation of officers of the Electrical Contractors' Association of Chicago will take place at a dinner at the Electric Club on February 9. The 1929 administration is: William McGuineas, president; J. W. Collins, secretary; J. O. Kelso, treasurer; O. F. Burnett, assistant treasurer; T. J. Costello, R. F. McMillan, J. N. Pierce and W. A. Jackson, members of the executive committee. The other member elected to the executive committee was T. O. Meade, who was killed as the result of an automobile accident on January 25.



Outdoor Floodlights

THIS gigantic reflector is for two 1000-watt lamps; throws an extremely wide spread of light without a blinding glare; is used for lighting large open areas, with an abundance of light, at a minimum cost—skating rinks, parking spaces, storage yards, airports, gas-service stations, etc.—and is but one of a number of floodlighting units we manufacture.

Other Kliegl Lighting Specialties

Borderlights
Cove Lights
Footlights
Color Lighting

Exit Signs
Aisle Lights
Step Lights
Auto-Calls

Floor Pockets
Wall Pockets
Panel Boards
Dimmers

Floodlights
Spotlights
Music Stands
Scenic Effects

for Descriptive Literature write

KLIEGL BROS
UNIVERSAL ELECTRIC STAGE LIGHTING CO., INC.

321 WEST 50th STREET
NEW YORK, N.Y.

Manufacturers News

A department for the announcement of activities of manufacturers that are of interest to contractors, such as changes in executive personnel, branch offices, new products, etc.

Arrow and H. & H. Merge

Effective December 31, by an agreement of consolidation, the Arrow Electric Co. and the Hart & Hegeman Mfg. Co., both of Hartford, Conn., merged and became one corporation under the name of The Arrow-Hart & Hegeman Electric Co. This company will have two divisions, The Arrow Electric Division and The Hart & Hegeman Division, each of which will operate independently through its own distributing channels.

It is believed that this merger will result in new lines, more efficient manufacturing, better service and a better product.

* * *

To Extend Use of Armored Cable

In a recent announcement, A. Penn Denton, engineering director of the armored conductor and flexible metallic conduit section of the National Electrical Manufacturers' Association, states that the section, as a manufacturing group, recognizes the broad field of use for armored conductors in residential, industrial, commercial and farm wiring.

"With this in mind," says Mr. Denton, "it has engaged in a trade extension program which contemplates constant research and development in conduit and fittings.

"The armored cable industry has grown from an infant industry twenty-five years ago to its present prominent position as a leader in the manufacturing wiring field.

"The industry, through cooperative effort, expects to extend the use of armored conductors in all wiring fields. The section believes that the trend in wiring practice today, as given in the National

Electrical Code, is toward standardization in all types of wiring in all cities of the country.

"This program is resulting in economies in manufacturing, distribution and installation methods, all of which are in the public interest."

* * *

General Electric Officials Appointed

At a recent meeting of the board of directors of the General Electric Co., Schenectady, N. Y., two commercial vice-presidents were elected: Wm. J. Hanley, manager of the east central district with head-



W. J. Hanley—C. K. West

quarters in Cleveland, and Charles K. West, manager of the Atlantic district with headquarters in Philadelphia.

Mr. Hanley's service with the company dates back to the old Thomson-Houston Electric Co., which was a predecessor of the present General Electric Co., and in which he began his electrical career in the capacity of construction foreman.

Mr. West has been with G. E. company since 1899 when he was employed in the Charleston, W. Va., office, remaining there as a salesman for ten years. He was then placed in charge of various commercial departments at Phila-

delphia, until 1922 when he took on the duties of assistant district manager and 1923 succeeded Geo. P. Baldwin as district manager.

* * *

Cutler-Hammer Changes Name

Announcement has been made of a change in the name of the Cutler-Hammer Mfg. Co., Milwaukee, Wisconsin, manufacturers of electric motor control, wiring devices and allied lines. The new name will be Cutler-Hammer, Inc.

The new company, which is organized as a Delaware corporation, unites The Cutler-Hammer Mfg. Co., Milwaukee, The Cream City Foundry Co., Milwaukee and Cutler-Hammer Mfg. Co., New York, under one name.

The officers are: Chairman of the board, F. R. Bacon; president, B. L. Worden; vice-president, F. L. Pierce; vice-president, J. C. Wilson; treasurer, H. F. Vogt, and secretary, W. C. Stevens.

* * *

New Addition to All-Steel-Equip Plant

The All-Steel-Equip Co., Aurora, Ill., is enlarging its plant for the third time in 10 years. This most recent addition will triple the capacity of the plant.

* * *

Display Stage Lighting Moves

The Display Stage Lighting Co., New York City, has moved into a completely renovated six story brick building of its own at 410 W. 47th St. where manufacturing facilities have been greatly increased.

Special numbers, particularly adaptable for garages, show window lighting, dance halls, hotels, restaurants and clubs, are being offered.

Use PAINE SPRING TOGGLS

in attaching your Electrical Fittings and Fixtures, to any hollow wall, ceiling or floor.



They Work
Instantly in any Position
In any Hollow Material.

THE SPRING DOES IT.
Your Jobber has them.

THE PAINE COMPANY
2949 Carroll Ave., Chicago
79 Barclay St., New York

General Electric Supply Corp.

EDISON MAZDA LAMPS
ELECTRICAL AND
RADIO SUPPLIES
BALTIMORE RICHMOND
NORFOLK CHARLOTTE

Distributors for General Electric Company, Radio Corporation of America and other large and reputable manufacturers.

New Conduit Type Cable Support



A Simple
Two Piece
Cable Support
for Vertical
Runs.

Pamphlet
Mailed Upon
Request.

O.Z. Cable Support Co., Inc.

45 Bergen Street,
Brooklyn, N. Y.

Multi Electrical Moves General Offices

The general offices and shipping department of the Multi Electrical Mfg. Co., Chicago, have been moved from the Ogden Avenue building to 1840 W. 14th St.

* * *

The Hunter Fan & Motor Co., Memphis, Tenn., has opened a Chicago office at 112 W. Adams St. under the management of D. C. Hunter. The territory covered from this office is Wisconsin, Minnesota, Illinois, and the city of St. Louis.

* * *

Warner Jones, formerly with General Dry Batteries has organized a sales agency to handle electrical products in the Cleveland territory. Among his accounts is the Wadsworth Electric Mfg. Co. His office is located at 1063 Roanoke Road, Cleveland Heights, Cleveland.

* * *

The Curtis and Curtis Co., Bridgeport, Conn., announces a new illustrated catalog on pipe threading machines.



NEW TRIANGLE SALES SET-UP:—Charles C. Hillis (right) who has been with the Triangle Conduit Co., Inc., for a number of years, is now the Pacific Coast sales manager and covers the territory from the entire Pacific Coast as far east as Denver. Next is J. E. McAuliffe, one of the founders of the company and until recently treasurer, who has been elected president and general manager. On the left is J. A. Jaques, who has recently taken over the sales management of the mid-western and eastern territory, extending from Kansas City to the Atlantic Coast. His title is that of eastern sales manager.



Ravel?

No indeed—
It Sticks
It's Strong
It's Safe
because—
It's O. K.!

Ask Your Jobber
About O.K. or Write
us for a Sample

APPLETON RUBBER CO.
Franklin, Mass.



To the Big New Features of
WIREMOLD

New "MASTER-SIZE" Wiremold opens up big field of industrial and commercial installation. Wiremold "BEAM-STRAP" makes it almost as easy to lay wires 'round beams as on surface. Other new features and sales helps.



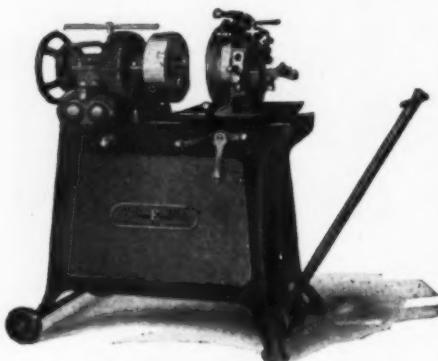
Send Us
Your
Name—
Now!

Get your name
on our mailing
list to receive
"The Wiremold
Business Build-
er" and other
timely informa-
tion and sales
helps.

FREE
SAMPLE
KIT

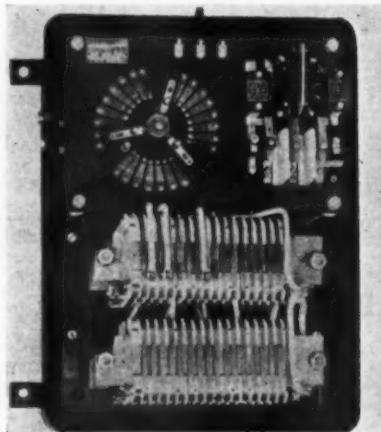
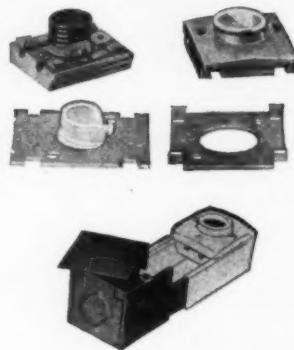
THE WIREMOLD CO.
HARTFORD, CONN.

New Electrical Products



Here is shown the "Red-E-Hall" portable power pipe bolt and nipple threader made by Hall-Will, Inc., Erie, Pa. Has three speeds (forward or reverse), selective transmission, hardened gears, Timken bearings. Convenient and protected motor in base—reversible for left hand threading, geared oil pump driven from motor. Capacity—steel, brass or iron pipe $\frac{1}{4}$ in. to 2 in., bolts and rods $\frac{1}{2}$ in. to $1\frac{1}{2}$ in., drives handstocks up to 12 in., short nipples.

Curtis Lighting, Inc., Chicago, has recently introduced three new fittings to be used with the Curtistrip, wiring raceway. They will be known as X-Raylet No. 12, service box; X-Raylet No. 5, receptacle (with shade holder groove) and X-Raylet No. 19BX, BX attachment. The service box has been developed to take care of conduit larger than $\frac{1}{2}$ in. It is provided with $\frac{3}{4}$ in. knockouts on each side, top and bottom, which can be reamed out to permit the use of conduit up to $1\frac{1}{2}$ in. The receptacle is made with a shade holder groove which makes it adaptable to the X-Ray form X holder and all standard shade holders for porcelain receptacles. The BX attachment allows for connecting $\frac{1}{2}$ inch armored cable to Curtistrip at any point.



The General Electric Co. announces a new speed controller for slip-ring induction motors, and primarily intended for ventilating fan motors. This device, CR-7765-B-1, has the primary magnetic switch, dial-type controller and speed regulating resistance mounted in a sheet-steel enclosing case. Provides overload and undervoltage protection, will give approximately 50 per cent reduction in speed by inserting resistance in rotor circuit. Has "start-stop" push-button station mounted on enclosing case which is ventilated and provided with knockouts in the top and bottom.



The Edwin F. Guth Co., St. Louis, Mo., offers a new series of fan and fixture combinations which are obtainable for both A. C. and D. C. operation. Shown is fixture model S 96595. These combinations may be hung from any standard fixture stud in a standard electric ceiling outlet, according to the manufacturer, and the fans may be had in lacquer finishes to match any fixture.



Lang's Daylight, Inc., Cleveland, has added two reflectors to its line. Aldeen No. 101, for 25 to 60-watt lamps, is for use in small windows, wallcases, showcases and cove lighting. It is $3\frac{1}{2}$ in. high and 4 in. in diameter. The Adenda No. 625, for 100 or 150-watt lamps, is for use in medium size windows. Its total height is 6 in. with adapter, and the width is 5 in.



The new "Vulcan Superior" vise recently placed on the market by J. H. Williams & Co., Buffalo, N. Y., offers two advantages—overhead adjustment, the handle being on top where it is easy to operate, and reversible jaws for longer life. When the teeth first in use wear the bolts can be unscrewed and jaws turned over. It is made from tough wrought steel, drop-forged base, jaws, handle and chain-arm, unbreakable, compact, positive in grip.



The household electrical division of the Cincinnati Victor Co., Cincinnati, O., announces the Victor "In-Built" Ventilator. The wall box or housing is telescopic which makes it possible to extend or contract it as the thickness of the wall may require and so be used in any building.



On a Vertical Conduit On a Horizontal Conduit

ELECTROLETS

Service entrance fittings that will go on the top of a vertical conduit, or on the end of a horizontal conduit.

Send for Booklet

KILLARK ELECTRIC MFG. CO.
3940 Easton Ave., St. Louis, Mo.

ELECTRICAL EDUCATOR

LEARN ELECTRICITY—EASY AS A, B, C. Key to theory and practice. Applications, maintenance, and repair of Electrical Appliances, Motors, Wiring, Lighting, Switchboards, Transformers, Batteries, Armatures, Generators, Radios, Radiators—1000 pages, 2000 diagrams—a reliable reference. Trouble saving information. AUDEL'S HANDBOOK OF PRACTICAL ELECTRICITY: Price \$4. Let us mail it to you for trial; pay \$1 a month if satisfied. Order today!

Theo. Audel & Co., 65 W. 23d St., New York, Dept. 800



THE RAWLPLUG CO., INC.
66 West Broadway,
New York City

Branches in 25 Cities
Write for Bulletin B-201

ESTIMATOR'S TIME SAVER



Every estimator's tool kit should have
1. Rotometer ... \$4.50
2. Tallying
Machine ... \$4.50
for taking off quantities of material quickly and accurately. Used by leading estimators. GUARANTEED to satisfy you or your money back. Send \$4.50 each for Rotometer or Tally Machine, postpaid.

The Peerless Blue Print Co.
341-347 Fifth Ave., New York City

Merger of Crane Companies Announced

The Shepard Electric Crane & Hoist Co., Montour Falls, N. Y., and the Niles Crane Corp., Philadelphia, have consolidated under the name of the Shepard-Niles Crane & Hoist Corp. Each plant will operate as before, with the main office at Montour Falls. The officers under the new arrangement are Frank A. Hatch, president; Sydney Buckley, first vice-president; Robt. Turner, vice-president; James Shepard, vice-president and E. A. Leeds, chairman of the board of directors.

* * *

Standard Electric Stove to Enlarge

The Standard Electric Stove Co., Toledo, O., has purchased ten acres of ground at Atlantic Ave. and the Wabash R. R., and within the next six months will build a plant which will approximately double its present capacity. This will be done at an expense of \$100,000.

* * *

Union Electric Enlarges Factory

The factory and offices of the Union Electric Mfg. Co., Milwaukee, Wis., are being enlarged—doubling its capacity.

This company reports a large volume of business through the sale of electrical control apparatus to the petroleum-producing industry.

* * *

Meyers to Represent Ettco

E. F. Meyers has been appointed agent for the Eastern Tube & Tool Co., Inc., Brooklyn, in the territory comprising Illinois, Iowa and Wisconsin, with offices at 133 N. Michigan Boulevard, Chicago. Mr. Meyers is one of the best known manufacturers' representatives in the Middle West. Since 1922, he has acted in that capacity in the Chicago territory, and prior to that time was, for 14 years the district representative there for the National Carbon Company.

He will continue, of course, to represent Central Tube and Reynolds in the same territory.

E-Z WIRE STRIPPER A HANDY TOOL



This inexpensive tool strips wire of 10 to 20 gauge 20 times faster than usual methods.

A MONEY BACK GUARANTEE with every E-Z Wire Stripper. Send for yours now.

\$5.00 LIST

PYRAMID PRODUCTS CO.
2313 South State Street Chicago, Ill.

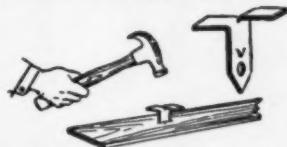
Henderson E-Z Conduit Bender

A hand hickey and stationary bender which makes any bends in the right place with small effort. Saves time and money for the contractor. Sizes $\frac{1}{2}$ ", $\frac{3}{4}$ ", and 1", threaded for pipe handles. Prices \$2.00, \$2.50 and \$3.00. Order from your jobber or direct from



Henderson Electric Co.,
Ampere, N. J.

Concrete Inserts Save Time in Conduit Installation



Pound them in the form; the concrete holds them solid; hang the pipe below.

Send for Bulletin or Sample

Commonwealth Electric Co.
417 Broadway, St. Paul, Minn.

Wrigley for Quality

STEEL TOGGLE BOLT



HOOD RIVETED ON

Wrigley Toggle Bolts
Made of heavier gauge steel.
Can be put through smaller holes
than average toggle bolt.
First Toggle Bolt made.

The Thomas Wrigley Co.
504 Sherman St., Chicago, Ill.

New Electrical Products



This "Diamond H" heavy duty switch put on the market by the Hart Mfg. Co., Hartford, Conn., is designed for commercial range and water heater work. New style clock spring used provides quick make and quick break. Furnished in standard type with black porcelain base, black bakelite cover with white indications and porcelain handle. Exposed steel parts are Cadmium plated to prevent oxidation.



The Standard Underground Cable Company, Division of General Cable Corporation, Pittsburgh, Pa., has just placed on the market a new design of low voltage joint box, designed for use with steel tape armored cables in airport and airway lighting installations.

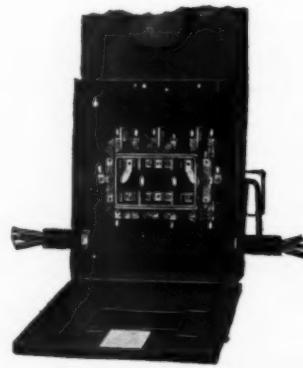
Illustrated are the two-way and three-way joint boxes. These boxes insure complete electrical and mechanical protection to the cable joint on account of their strong construction, and are light in weight, occupy a minimum amount of space and require but a small amount of insulating compound. The illustrations show the cable clamps which bind the steel tape armor in place for the purpose of making rigid mechanical connection between the box and armor in order to relieve the joint of all longitudinal stress.



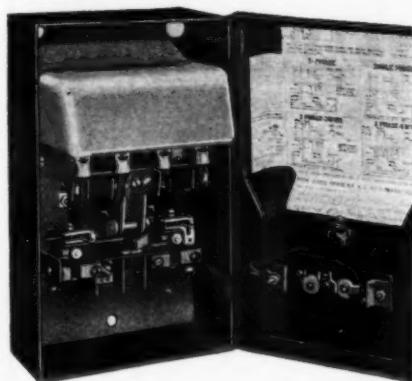
Bulldog Electric Products Co., Detroit, Mich., is placing on the market a square duct or trough to be used as a wire raceway. The duct, which is $3\frac{1}{2}$ in. square in cross-section, is made in three lengths, 5 ft., 3 ft., and 1 ft. It is made of heavy steel with flanged ends so that the sections may be bolted together. Knockouts are provided for $\frac{1}{2}$ in., $\frac{3}{4}$ in., 1 in. and $1\frac{1}{4}$ in. conduit. The trough comes provided with a hinged cover and spring latches for holding it in position. A full line of nipples, elbows, flanges, corners, tees, hangers and other fittings are available. The material is being marketed under the trade name of "Bulldog Pro-DUCT."



The Louis Allis & Co., of Milwaukee, has developed an explosion-proof motor, shown above, which is fully enclosed and self-ventilated. It eliminates fire hazard when connected to machines in explosive atmospheres and being enclosed is sealed against excessive dust, moisture, oil and other foreign matter. A "Resistallis" coating which protects windings of open motors has also been developed by this company, making them suitable for installations where quantities of organic dust, moisture, acid, etc., are present.



Colt's Patent Fire Arms Mfg. Co., Hartford, Conn., has brought out the Noark Quadbreak polyphase switch including the following features: Small arc, rugged switch construction, complete fuse protection, full floating and self aligning contacts, safety and convenience in meter testing, small movement of slide to gain access to fuses, close banking permitted through use of new type slide cover, and complete standardization as to end-walls, knockouts, etc. Made in two types—meter service and main entrance. Both are obtainable in two styles of cabinets, Seco with single cover and Acco with the auxiliary door in the main cover.



The Allen-Bradley Co., 286 Greenfield Ave., Milwaukee, Wis., is now offering its former J-1552 Form B starter in a new and longer cabinet. No change has been made in the internal mechanism of the starter, and it remains at the same rating of 5 H. P., 220 volts and $7\frac{1}{2}$ H. P., 440 or 550 volts. The new model is known as Bulletin 709 starter.

The inside length has been increased $1\frac{1}{8}$ in., providing liberal wiring space. The Bulletin 709 starter is furnished in three forms; Form 1 with push buttons in the cover, Form 2 for remote control, and Form 3 with lever switch for automatic or manual control.

Rubber Insulated Wires and Cables

Insulating Tapes and Splicing Compounds

Raven
Core
Wires
Grimshaw
Tapes
Competition Tapes



NEW YORK INSULATED WIRE CO.

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Factory:
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Electricians!

—this hammer is going over big! It is new, useful, and sells to you direct for only

\$2.00

A n electrical mechanic designed this hammer. He gave it a long poll (2 inches) to reach over pipes and into outlet

boxes. The claw is built for prying; the handle is seasoned Hickory. One electrician writes, "Now I wouldn't be without it in my tool kit!" You'll say the same—or your money back!

SEND COUPON TODAY!

Evansville Tool Works, Inc.,
Evansville, Indiana

Gentlemen:
I am enclosing my P. O. Money Order for \$2.00. Please send me the No. 77 Electrician's Hammer at once.

Hdw. Dealer

Address

My name

Address



Wagner Issues Testing Manual

Wagner Electric Corporation of St. Louis, Missouri, has just issued the fourth edition of its bulletin on Manual of Electrical Testing, a 20-page bulletin on testing single phase and polyphase motors, and testing transformers for core loss, copper loss, polarity, insulation, temperature rise and efficiency. This edition is No. 138.

* * *

Graybar Has Highest Sales Record in History

With a record of \$75,000,000 for its total sales during 1928, the Graybar Electric Co. closed the best quarter in the history of the company, according to an announcement by G. E. Cullinan, vice-president in charge of sales. Seven new branches were added to the company during 1928 and further expansion will be carried out wherever necessary, according to the report.

* * *

W. W. Loveland, former Philadelphia representative of Pass & Seymour has been appointed Philadelphia district manager for the Trumbull-Vanderpoel Electric Mfg. Co. succeeding L. B. Underwood, recently appointed general sales manager of the company.

* * *

Pass & Seymour, Inc., Syracuse, N. Y., offers a four-page folder, catalog sheet size, illustrating many new models, and showing the colors in which P & S Alabax brackets and receptacles are available.

Classified Advertising

Wanted: A large Electrical Contractor operating in the Chicago Territory (but not in Chicago) desires the services of an experienced man to assume charge of sales and estimating. Must be a salesman as well as engineer and estimator not including power house or factory work.

An excellent future for the right man. Give full details and experience in first letter. Box 541, ELECTRICAL CONTRACTING.

Estimator Available! A young man with six years' experience as an estimator, salesman and shop and store manager is available for a position with an electrical contracting company in any locality where there is a chance for advancement. Box 542, ELECTRICAL CONTRACTING.

"DETROIT" RUBBER COVERED WIRES

(Reg. U. S. Pat. Office.)

RUBBER INSULATED WIRES AND CABLES

LAMP CORDS

AUTOMOBILE WIRES

PARKWAY CABLES

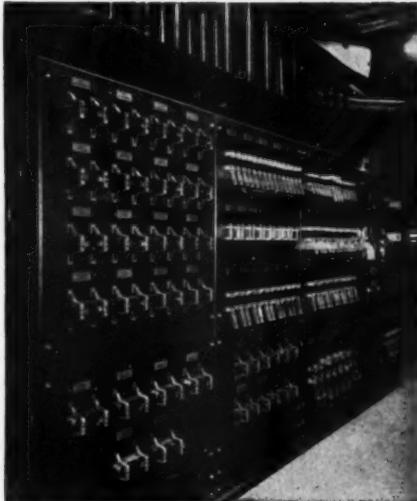
LEAD ENCASED RUBBER INSULATED WIRES AND CABLES

UNIDUCT ARMORED WIRES

FLEXIBLE METALLIC CONDUIT

Detroit Insulated Wire Company
Detroit, Mich.

Division of General Cable Corporation



BERTHOLD SWITCH and PANEL BOARDS for LIGHT and POWER

Berthold "Selectrolite" System of Lighting Control for theatres, auditoriums, lodehalls, etc.

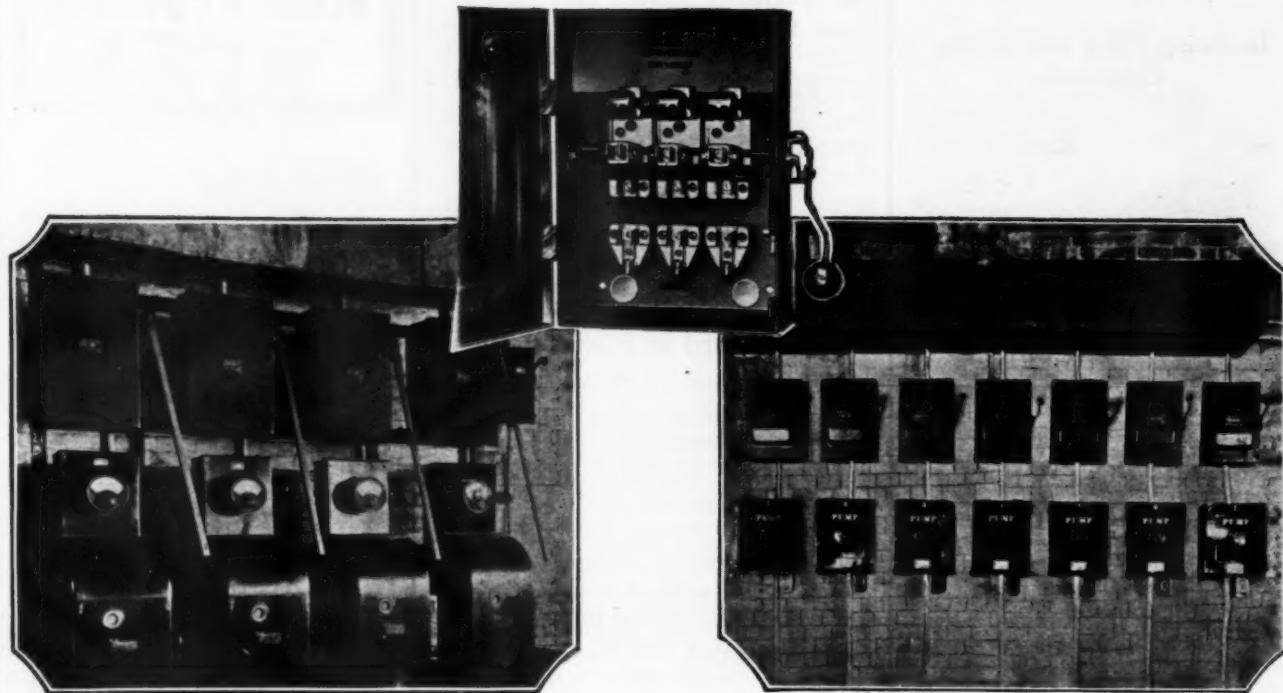
GUS BERTHOLD ELECTRIC CO.
555 W. MONROE ST. CHICAGO, ILL

Steel Cabinets



Stage Equipment

Contractors, here's the Super Safety Switch



Current Breakers
used with motor
starting equipment
and pump service.

The V Current Breaker

There is no better safety switch made for your industrial business than this V Current Breaker.

It is strong, rugged and built to break better than the full rated load.

Tests for over a year under severest conditions possible in actual use, have demonstrated its superiority.

That's why one of the largest paper mills in New England with factories in Massachusetts and Rhode Island selected the V Current Breaker as disconnect switches for their motor starting equipment.

Hundreds of these Current Breakers are used in the various plants of this mill.

Contractors like the V Current Breaker because there is plenty of wiring space and knockouts everywhere that come out clean as a hound's tooth.

Try the V Current Breaker on your next industrial job and you will have a satisfied customer.

Trumbull-Vanderpoel Electric Mfg. Co.
BANTAM, CONN.

NEW YORK

BOSTON

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ST. LOUIS

PITTSBURGH

PHILADELPHIA

DENVER

On the Pacific Coast—C. Dent Slaughter

ATLANTA

V SAFETY SWITCHES



